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DECEMBER 29, 1956
VOL. 151—NO. 26

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

ALASKA CABLE

View of cable landing operation in the underwater communications system connecting U. S. and Alaska, which opened Dec. 11. Large section of drum and balloon-supported section cable is submerged. See page 23 for details.

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ELECTRONICS SECTION — Page 13

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XUM

FLASHES AND PLUGS

CHRISTMAS RUSH. As part of the service of the professional baby-sitter organization of which he is secretary, a gentleman in Los Angeles every year calls his young clients on the telephone to remind them Christmas is coming and they should be good little boys and girls, relates the *Los Angeles Times.*

He does this in the vocal guise of Santa Claus, with appropriate sound effects in the background, stamping his feet like reindeer hoofs and jangling sleighbells. One of his first calls this year was to a six-year-old girl in Beverly Hills.

"Hello, Michelle," boomed the deep, jolly voice. "This is Santa Claus. Ho-ho-ho!" Dead silence greeted the announcement.

Santa Claus jangled his sleighbells close to the telephone, stamped his feet and emitted a noise he sincerely hoped approximated the noise emitted by restless reindeer.

"Whoa, there, Blitzen, stop that!" he boomed in a jolly aside. "Stop nibbling my long white beard. Those reindeer of mine," he went on, turning his attention again to the subject of his call. "Dancer and Prancer, Vixen and Blitzen—they're all just waiting to carry me over the chimney tops! Ho, ho, ho! And what about you, Michelle? Are you being a good little girl?"

Unrewarding silence followed, relieved only by gently jangling sleighbells. Finally it was broken by a poised and well-modulated 6-year-old voice.

"I'm awfully busy right now, Santa Claus," Michelle replied. "Could you call back about 7:30?"

•

SANTA, THWARTED. A Fort Banks soldier amassed $500 for family Christmas presents and secreted the money in his home telephone directory in Boston without telling his family, relates the Associated Press.

The telephone company distributed new directories and the private's wife turned in the old book, which, in due course, was dumped at a waste paper firm.

The private and a group of Army buddies spent several hours going through some of them on Dec. 13, but finally gave up the search.

•

PARTY-LINER. Joy, a two-year-old parakeet belonging to a family in Punta Gorda, Fla., has been banished from the office of the family-owned millworks for a long list of misdemeanors, reports the Associated Press.

He greeted ladies with wolf whistles, perched on men customers' eye-glasses and hitched rides on typewriter carriages.

Most disrupting of all, he insisted on chattering over the telephone every time someone tried to use it.

CIRCULATION

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THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

December 29, 1956

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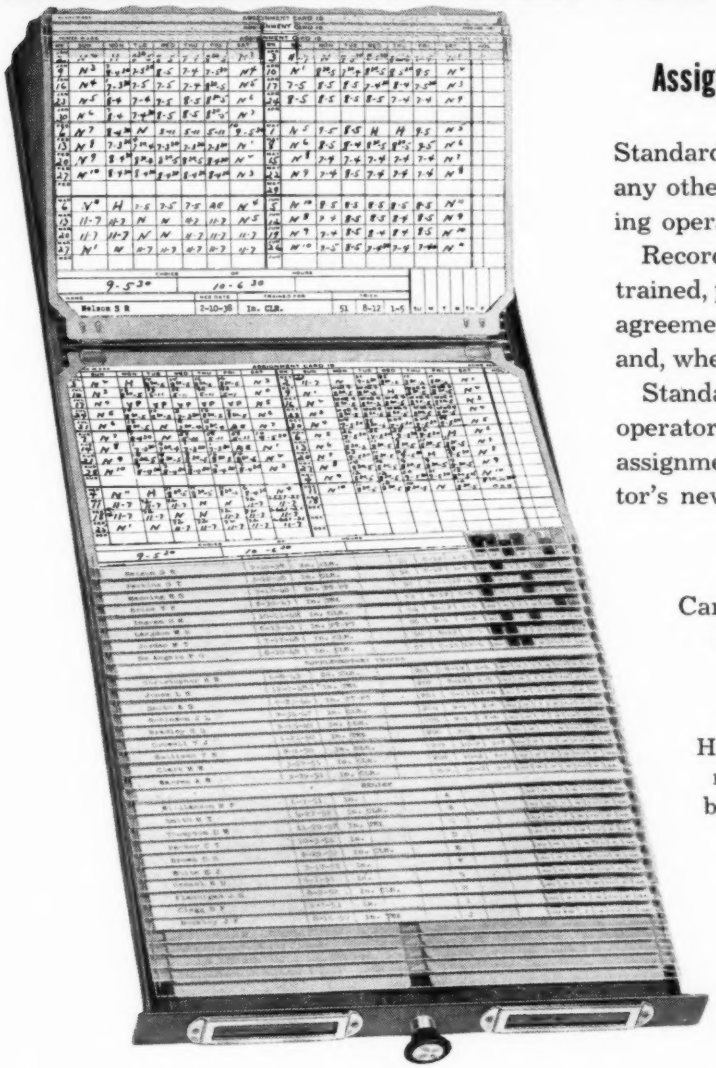

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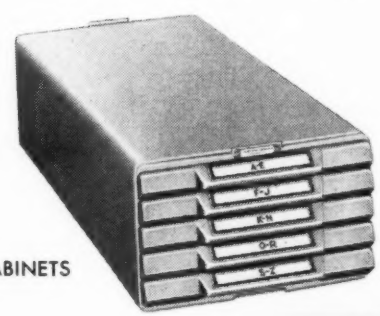

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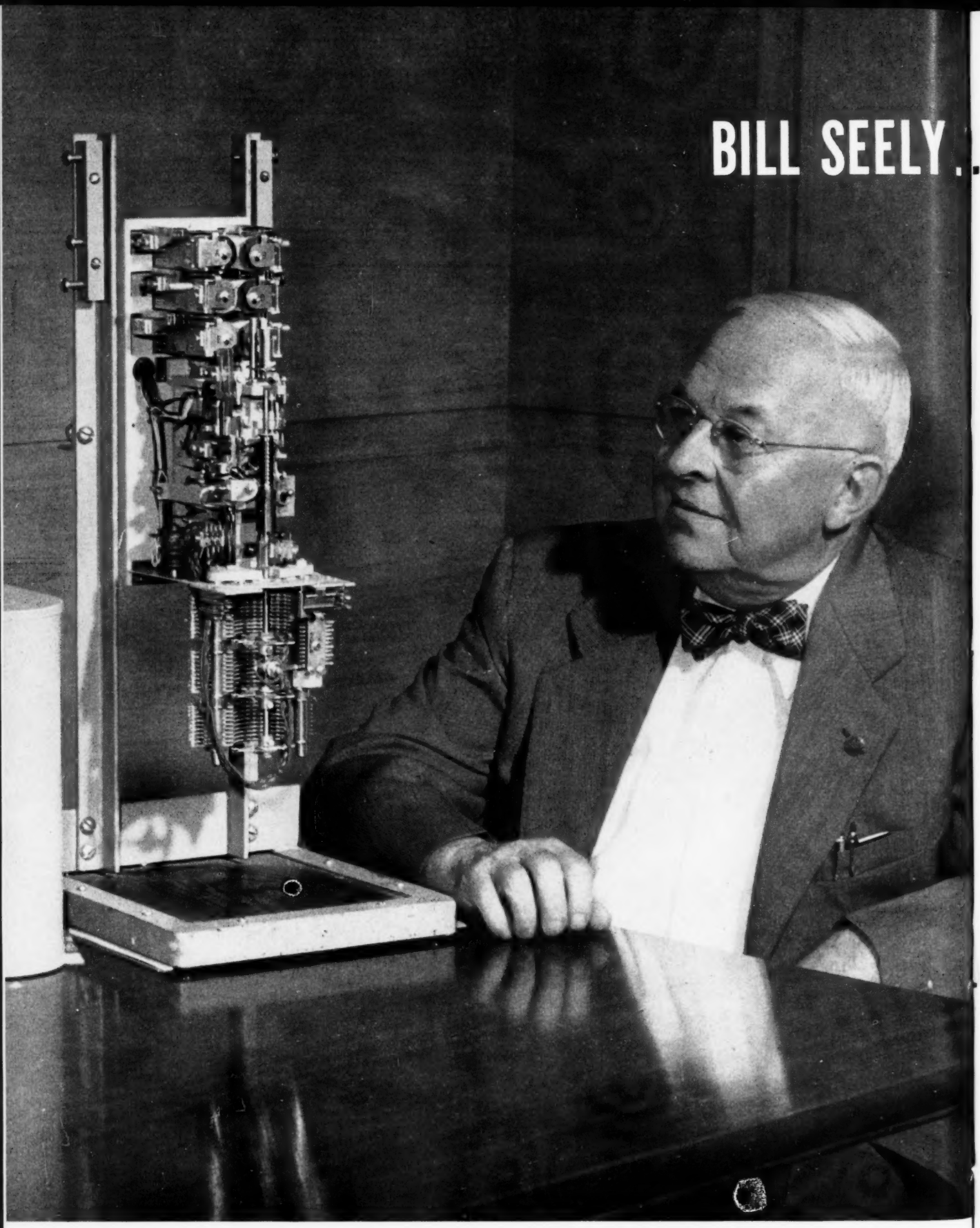

Bill Seely, who is celebrating his 50th year in the telephone business, with a demonstration model of the Federal Step-by-Step switch. He has selected this switch for installation next year in the Mt. Upton, New York, exchange.

. LOOKS FORWARD

Makes purchase of rugged, expandable Federal Step-by-Step

This year Bill Seely, President of the Chenango and Unidilla Telephone Company, and past president of New York I.T.A., is celebrating his golden wedding anniversary and also his 50th year in the telephone business.

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Bill Seely with the Kellogg Grabaphone which appeared the same year that he began his career in the telephone business. Recently Mr. Seely placed an order for Kellogg's newest "K-500" telephone.

William Kingman, Secretary and Treasurer of the Chenango and Unidilla Telephone Company, and Mr. Seely watch Kellogg's W. R. Hastings demonstrate the simplicity of the Step-by-Step switch.

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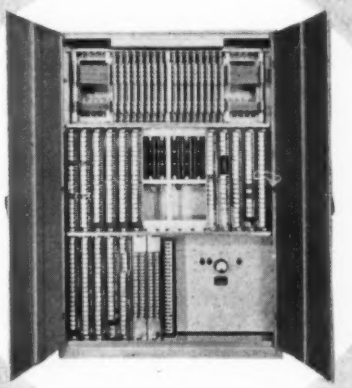

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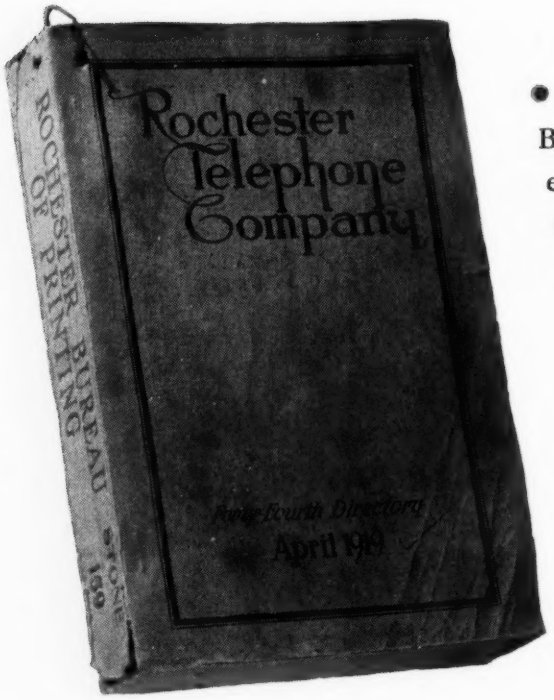

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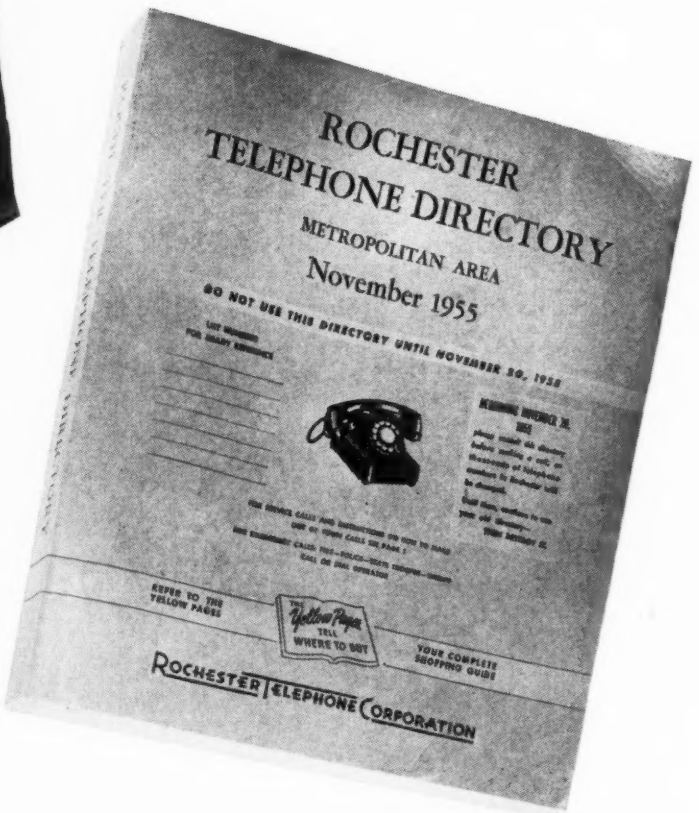

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

Welch makes predictions on Washington developments of interest to telephone companies. Gives himself a score of 75 per cent on the forecasts he made for the year 1956.

AGAIN it is the joyous season for wishing each and all a Happy and Prosperous New Year for 1957. For this department it is also the time to make the annual forecast of things to come during the 12-month period ahead—from the standpoint of Washington and other political developments of special interest to telephone companies and public utilities generally.

And, so, good readers, we will now dim the house lights, put another log on the fire and polish up the crystal ball while your correspondent peers into the future. It must be admitted from the outset that the 1956 prophecies fell a little below par—only 75 per cent. (See page 10.) That is just about a passing grade. But maybe the 1957 forecasts will work out better.

One of the troubles this writer had in making the forecasts for 1956 was that he made at least two of them (about the wage-hour changes, and federal-aid highway relocation expense provisions) while, at the same time, professing to hope that he would be proven *wrong!* Well he got his wish on both counts. It turned out to be something in the nature of "That's right; you're wrong," which is not a very satisfactory way of going about making annual predictions of things to come.

Let us, therefore, get these 10 predictions for 1957 on the record without any hoodoo qualifications. This time the house prophet hopes they are all right, every one of them, and let the chips fall where they may:

(1) *There Will Be Lots of Rate Cases.* We go into the year 1957 with a number of inflationary influences at work. True, the administration's policy of tight money to hold unnecessary credit expansion in check should be a restraining influence on further deterioration of the purchasing price of the dollar, but this very policy of tight credit is going to mean difficult financing. And telephone companies, as well as other kinds of utilities, will feel the pinch in raising new money to take care of the constantly increasing demand for service expansion, and plant construction which must necessarily take place to handle such demands.

With bond interest high, and going higher, and with the cost of equity money almost out of sight, there will have to be higher rates to produce the necessary income to provide for increased revenue requirements. In plain words, this means more rate cases, probably all during the year 1957, both for Independent and Bell System companies.

We also can expect considerable resistance at the state public service commission level, which will mean a certain amount of litigation in the appellate courts. In the process, there should be some interesting cases involving both court and commission review, if not revision, of basic regulatory principles controlling public utility rate making.

(2) *Not Many Regulatory Law Changes.* From what has been said in the preceding paragraph, it might be inferred that a corresponding amount of activity will be going on in state legislatures in making possible changes in regulatory laws for public utilities. Undoubtedly, there will be some, considering the fact that the legislatures of 45 out of the 48 states will be meeting during the early part of the year 1957. We know already that Governor Harriman of New York will ask his legislature to nullify the New York Court of Appeals decision requiring the New York Public Service Commission to pass telephone rates on replacement cost rather than original cost. (The New York commission is already considering the application of the New York Telephone Co. for an additional 55.4 million dollar rate increase, based on replacement cost rate making.) At least one of the Mississippi commissioners is grumbling about what he calls the "inadequacies" of the almost brand new (1956) regulatory law in that state. It will be very close in New York. And it may be that Governor Harriman will have his way. But, on the whole, looking around at the rest of the states, this writer does not expect that the lawmakers will be inclined to do very much statutory revision in the year ahead.

(3) *Not Much Change in Excise Taxes.* Early in December a sub-committee of the House Ways and Means Committee heard a parade of witnesses representing various manufacturers in other industries subject to excise taxes argue for repeal or elimination thereof. Among others were witnesses for the Bell System and the United States Independent Telephone Association asking for a cut in the 10 per cent tax on monthly bills and long distance calls. But the treasury at the first day of the hearings argued against any excise tax cuts, including those which had been slated for next April under the present law.

For a variety of reasons, this writer expects that all excise taxes will be continued. The coming year is not an election year. To repeal one industry's tax without repealing the others would provoke a donnybrook of indignant outbursts. The treasury does need the money, if the Eisenhower administration is going to bring forth another balanced budget. The excise taxes, themselves, are supposed to exert some anti-inflationary influence. Add all these together and the result would seem to suggest very strongly that no changes will be made in the excise rates.

One exception might be made in the case of taxes on ultrahigh-frequency TV receiving sets. The idea here would be to encourage the public sale and distribution of such television sets so as to carry out the FCC's policy of promoting more widespread use of the ultra-high-frequencies for television. Such a tax change, of course, would have little to do with Uncle Sam's revenue requirements as such. It would be more in the nature of a regulatory adjustment through tax exemption.

(4) *No Changes in Corporate Income Taxes.* What we said about excise taxes applies with equal force to corporate income taxes at the current rate of 52 per cent.

(5) *A Tough Fight on Highway Relocation Expenses.* Readers will recall that Congress gave the public utilities of all kinds—both publicly and privately owned—something less than half a loaf when it incorporated a provision dealing with reimbursement for relocation expense incurred in highway construction under the new Federal-Aid Highway Act of 1956. This provision allows the states to use the federal money in part to reimburse utilities only if such reimbursement is legal or authorized under their own state laws. Unfortunately such is not the case in a good many states. And the public utilities in all these states face an uphill task in convincing state legislatures, state highway commissioners, and others that the local laws and regulations should be changed.

Mention has been made that the legislatures of 45 out of the 48 states will meet next year. But aside from those states which already permit reimbursement for relocation costs, it would be very optimistic to expect much more than a half dozen to a dozen states to change their statutes so as to give the public utilities some real benefit from the federal legislation. Yet, the job has to be done, and in the long-run probably will be done in a fairly satisfactory degree. The prediction here is that telephone companies and other utilities should not expect too much progress in 1957, but that they should keep trying.

It looks like a long, hard pull, extending over several years. In a few states, changes might be worked out through statutory interpretations or regulations by the highway authorities without the need for specific statutory amendments, dealing with relocation expense. Public utilities everywhere,

Welch Gives Himself 75 Per Cent for 1956 Forecasts

Following is the score on predictions for 1956, and what happened to them after they appeared in this department of TELEPHONY, issue of Dec. 31, 1955:

(1) **Utilities as a Campaign Issue.** It was predicted that public utilities, with emphasis on the electric utilities, would be prime targets in the election campaign.

Right. The Democratic candidates, particularly Senator Kefauver, hit this pretty hard. On the final result, it did not seem to cut much ice one way or the other.

(2) **The FCC and Congress.** An investigation of the FCC, especially as to radio and television regulation, by the Senate Interstate Commerce Commission was foreseen. But it was said that telephone matters would not be stressed.

Right. The FCC did spend a great deal of time "on the carpet" before the senators—but mostly on radio and TV matters. The telephone industry attracted more attention in the House Judiciary Committee regarding the Bell System's consent decree.

(3) **FCC Regulatory Developments.** Conflicting claims of common carriers (telephone) and other industries seeking to use disputed frequencies was predicted.

Right. By its order of Sept. 21 (Docket No. 11,435), the FCC allowed telephone carriers to share, for the first time, in the 450-460-megacycle band of frequencies. Then, due to protests from other utilities and industries this order was "stayed". There are still many, many more angles of this problem to be settled, as seen in predictions for 1957.

(4) **Rate Case Activity.** The New York Telephone Co.'s decision was picked as the top case in a year of continued rate case activity.

Right. The highest state court upheld the company's claim to a replacement cost rate base. The New York Legislature refused the governor's request for nullifying legislation.

(5) **Taxes.** It was forecast that there would be no corporate tax relief or excise tax change, but rather a cut in personal income taxes was foreseen.

Half Wrong. The corporate and excise rates were unchanged. So also was the personal income tax. (Deduct 5 points for this.)

(6) **REA Developments.** It was estimated that REA would get more money than it asked for (about 75 million dollars) for telephone loans and that REA policy would settle down on a more cooperative basis with telephone companies.

Right. REA got more than the budget asked. It got 100 million dollars. Cooperation between REA and Independent companies has been quite noticeable, as evidenced by the USITA resolution adopted last October.

(7) **Wage-Hour Legislation.** It was forecast that telephone companies would lose their exemption for small exchange operators under the statute. Your correspondent hoped he would be proven wrong.

He was. Congress made no change in the small exchange exemption. (Deduct 10 points.)

(8) **Highway Relocation Expense.** Again your correspondent hoped he would be wrong when he forecast that there would be no provision for utility reimbursement and probably no highway legislation.

He was wrong on both counts. The highway bill was passed with a relocation provision. (Deduct 10 more points.)

(9) **Public Relations.** More activity and good results from industrial publicity and public relations efforts was forecast, in the face of anti-utility political attacks during the campaign.

Right. Telephone companies as well as other utilities made some very good public relations hay during the year, while the political attack fizzled.

(10) **Socialism.** It was forecast that there would be no further gain for Socialism in the public utility field, both at home and abroad.

Right. The Eisenhower administration swung over to a "partnership" policy. The courts upheld FPC licensing of private power companies. Conservatives won another election in Britain and the Eisenhower administration's policies were apparently vindicated at the polls.

which have not already done so, should check their state laws and regulations to see how they stand and to determine whether the state legislature, the state highway commissioner, or the state attorney general should be the first target where the existing law does not allow relocation expense.

(6) *REA Developments.* The prediction is hereby made that Congress will give REA at least as much new lending authority (100 million dollars) for rural telephone loans as was appropriated during the current fiscal year, ending next July 1. Indeed, there is a good chance that Congress might even boost the ante—depending on whether foreign tension simmers down and Congress can turn its attention once more to domestic agricultural assistance and commitments. With "tight money" snagging commercial loans, and some state public service commissions nagging the small telephone companies about turning down dirt cheap 2 per cent REA money (as compared with 5 per cent commercial source money), a surprising lot of Independent telephone companies are being tempted to get in that line forming on the right of REA. This prediction may disappoint some readers of this department, but, after all, that is the way the ball bounces, and your correspondent has to "call 'em as he sees 'em."

Yet, relations between Independent telephone companies and REA (now headed by David A. Hamil) should continue to improve. REA has shown its desire to cooperate with Independents in working out important policy decisions with its telephone industry advisory committee. The USITA, and its convention in Chicago last October, adopted a resolution which should help the improvement of such relationships from the Independent industry's side.

There is one small cloud on the horizon for REA, generally. That is the continuation of the very sub-normal 2 per cent interest rate. With even commercial banks paying 3 per cent interest on individual savings accounts, and Uncle Sam having to pay 3 per cent or more on short-term notes, there is going to be pressure in Congress to boost the 2 per cent REA loan rate. It will be resisted, of course, and the odds are that such resistance will be successful. The chances depend on whether the present "tight money" situation gets any tighter and whether over-all interest rates continue to rise. If the rate does continue to rise, it is going to be pretty hard to justify the prolongation of the unrealistic 2 per cent rate on REA loans despite the political popularity of such loans with the farmers.

(7) *Labor Legislation.* Notwithstanding the recent stubborn telephone strike against an Independent telephone company organization in Ohio, utility anti-strike laws are not attracting much support. Governor Lausche in Ohio got hit hard in his attempt to revive the old state seizure type of legislation still prevailing in Virginia. This writer does not expect that any state legislatures meeting next year will pass new laws along this line. If critical utility strikes should develop, and if they involve companies big enough to come under the Taft-Hartley Act, it is likely that the federal government will try to work with the anti-injunction provision of that law, rather than seek any new legislation covering utility strikes which would have to be in the form of amending the Taft-Hartley Act.

On the contrary, the AFL-CIO have not been very successful in getting legislation repealing the 18 so-called "right-to-work" laws adopted by states in recent years. So far only Louisiana, through a compromise trading off the farmers against city employers, has passed actual repeal legislation. Labor union people will, of course, make a very definite new pitch for repeal legislation in the numerous state legislature sessions.

The Wage-Hour Law will again come under congressional scrutiny. And the provision exempting small telephone company exchanges (with respect to telephone operator wages) will be made an issue again by the Communications Workers of America. With the House Labor Committee still headed by Representative Barden (D., N. C.), this writer feels that amendments to remove the small exchange exemptions are not likely to prevail during the year 1957, although some progress may be made in the Senate.

(8) *Telephones and the FCC.* As in the past several years, telephone companies should not have too many problems with the Federal Communications Commission. As a matter of fact, in view of the law passed by the 84th Congress permitting the FCC to dispense with hearings in non-contested acquisition cases, it is not likely that the telephone industry, as such, will have as much business with the FCC in 1957 as it did in preceding years. But, it will be very important. On Nov. 9, 1956, the FCC initiated a formal study of frequency allocation in the 890-940-megacycle band. Telephone companies are vitally interested in this. And, it is good news that the FCC apparently intends to do something about it in 1957. The telephone industry needs the 890-940-megacycle band to take care of swiftly expanding common carrier microwave operations. General hearings will probably come up next spring.

The commission itself, of course, will have plenty of work cut out for it in the radio-television field. A vacancy comes up next spring—the term of Chairman George C. McConnaughey expires. At this writing, it would appear that McConnaughey is entitled to reappointment on his record if he wants it. And, so the prediction is made that if he wants it, he will get another nomination from President Eisenhower.

The FCC started to give the telephone companies a break in its order of last September (Docket No. 11,435) permitting them to share, for the first time, in radio frequencies used by other public utilities and industries for non-utility communication services. This order was subsequently held up by a "stay" order issued Oct. 24, 1956, and it will take a lot of persuasion from the telephone companies to get it reinstated.

Also, there still remains to be determined a rather basic question raised in the application of the state of California for permission to use certain frequencies for radio communications between state offices and for the dissemination of state government influence—traffic now carried by telephone-telegraph facilities. The FCC and the interested parties have been stalled on this question for two years. Maybe things will get started in the year 1957 in time for a decision. The FCC has been a target of a considerable amount of criticism because of its interminable delays, much of which can be traced to technical procedures.

Incidentally, Congress will consider, and quite possibly pass, some minor legislation attempting to streamline FCC procedures. The commission still struggles under a back-breaking case load.

(9) *Telephone "Appliances."* The recent decision of the U. S. Circuit Court of Appeals for the District of Columbia in the so-called "Hush-A-Phone" Case promises to be a real trouble-maker for the telephone industry. And some of that trouble may materialize in 1957. That decision reverses the FCC and requires telephone companies to permit the use of gadgets which fasten over a telephone instrument. These instruments are commercially produced and sold independently of telephone industry control.

The Hush-A-Phone itself is not such a difficult appliance that the industry could not live with it. For one thing, widespread usage is hardly likely. But the circuit court of appeals decision,

(Please turn to page 31)

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE RECENTLY received a news item from Mr. D. Reginald Tibbetts of the Moraga (Cal.) Community Telephone Association, stating that the telephone circuits connecting Japan's two cities of Sapporo and Asahikawa were snarled recently when 56 out of 70 circuits failed. An unknown thief sneaked off with a 5-foot section of the telephone cable.

This brings to mind an incident that occurred back in the "Roaring Twenties" when this writer was stationed in Manila, P. I. The Pacific commercial submarine cable to the States failed and was out of service several days. We met the local manager of the cable company and inquired as to the nature of the trouble.

He stated that a section of the cable had been cut out and stolen in the Chinese water. He stated further that the offending coolie would not ever bother their cables again as he had been caught, convicted and beheaded.

However, it would appear that even such drastic treatment does not provide communication insurance as they are continuing to steal cable in the Orient.

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When returning from Europe on my recent trip, we boarded a plane in Paris about nine o'clock one evening. Soon after the take-off, we were served a delicious dinner and it was not long thereafter I fell into a sound sleep. I awakened after several hours and looked out the window. All I could see was the moon shining on the clouds.

It was a lovely sight and knowing that we were over the Atlantic at an altitude of about 20,000 feet I could not help but have a feeling of isolation. It just seemed that we were such a long way from anything. Then, suddenly, I saw the flashing lights of another plane going in the opposite direction.

Undoubtedly, this plane was at least a mile on our left and perhaps was flying at a few thousand feet altitude different from us, but at that moment it seemed very near. I lost my feeling of isolation and felt most thankful for the good reliable communication of the airlines that makes this type of navigation safe.

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A recently developed ventilating heater appears to adequately meet a need of long standing. A constant supply of forced fresh air ventilating a manhole prevents accidents to workers caused by explosions or oxygen deficiencies. This ventilating heater also provides the splicer with a safer and more comfortable place to work.

This heater is also a ventilator as it will blow 300 to 800 cfm of fresh air into the manhole for summer operation. It may be changed in a matter of seconds and will blow heated fresh air into the manhole. Heated fresh air is often desired for comfort and to speed up drying operations.

The ventilating fan may be operated by an electric motor or a small gas engine. Liquid petroleum gas (propane) is the fuel used to provide the heated air. This same gas may be used to heat a lead furnace when desired. This type heater may also be provided for use in heating cable splicer's tents, when necessary.

"Now stop telling those new men this is where a green Lineman fell off a pole...you know a farmer's been blasting stumps out here!"

We enjoyed a demonstration of a portable recorder recently that, in our opinion, fills a need of long standing. This new recorder weighs less than 6 pounds, and measures only 2⅞ x 6¼ x 10 inches. It operates from 115-volt, 60 cycle power or by the use of a converter which can be operated from an automobile storage battery.

The small plastic disc records may be mailed in a standard No. 10 business envelope without stiffeners. A total of 2¼ hours of recording may be mailed for three cents postage.

This recorder should prove ideal for engineers and inspectors taking notes in the field. It should also prove useful for recording testimony in all types of investigation.

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Dry type CEMF cells are now available and may be used as a replacement for the liquid-filled type. This new dry type cell eliminates the maintenance problems generally associated with liquid-filled cells. They do not give off explosive gases, and do not require periodic attention or maintenance.

These new dry CEMF cells consist of selenium-covered metal plates, specially treated so that their resistance decreases rapidly as the current flowing through them increases.

Actually, the voltage drop across these cells changes very little for substantial changes in the current flow. They are, therefore, effective as voltage regulators. The amount of voltage drop is determined by the number of plates connected in series.

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It has been said that life doesn't begin at 40 for those who went like 60 when they were 20.

CONELRAD MONITOR

SINCE 1953, the Federal Communications Commission (FCC) has required that all standard AM, FM, and TV stations participate in the CONELRAD program. Starting in January, 1957 the amateur and mobile services are required to do likewise. So far the program has not been extended to telephone company micro-wave systems in the 900-megacycle region and above, but companies which have mobile radio equipment will be affected by the new order.

During a CONELRAD alert all stations whose radiation might be used by an enemy for direction finding purposes, are required to maintain radio silence. When an alert occurs, all standard radio broadcast and TV stations will broadcast the fact. Official notification to radio station operators will come by means of certain key broadcast stations which, when the alert is received from the military authorities, will do the following:

Stop the regular program; cut the transmitter carrier for five seconds; return the carrier to the air for five seconds; cut the carrier again for five seconds; return to the air and broadcast a 1,000-cycle tone for 15 seconds. Following this, a voice announcement will be made that this is a CONELRAD alert.

Following this, the only broadcasting allowed will be on the frequencies of 640 and 1,240 kilocycles under a system whereby the civilian defense or other information broadcast will be switched rapidly from station to station, so that the emission would be useless for navigational purposes.

All owners of radio transmitters affected by the existing orders must monitor one of the key stations, and when an alert is received, they must shut down their own equipment. This would normally require listening constantly to the program of one of these stations. However, for those who have better things to do than listen to the efforts of disk jockeys, some other arrangements are possible.

A practical approach is "silent monitoring" of the key station. That is, the use of an electronic device which will do the listening for you and will sound an alarm if the alert comes on. One suggested arrangement for amateur stations called for a crystal or dry disk rectifier connected in place of the speaker of an ordinary radio set. In series with this would be a sensitive relay. Shunted across the relay would be a large condenser which would hold the relay up during the syllables of speech or other short interruptions.

A telephone company, or other user of mobile equipment, is more likely to require a more reliable system, one which would not be susceptible to continued false alarms yet one which would be "fail safe." That is, a system which would sound an alarm if the monitor receiver or even the key broadcast station fails yet which would not require constant listening to the station.

Carrier Alarm

A better approach is to use an alarm similar to the alarm now used on telephone carrier systems. With this method, the received carrier is changed to dc, amplified, and then used to hold a relay operated. If the carrier receiver fails, the relay drops and

This is a radio receiver designed especially to monitor CONELRAD alerts. It features a built-in and external alarm feature, permits monitoring the key station without listening to the program.—Photo, courtesy of Kaar Engineering Corp.

the alarm sounds. This same idea can be used with a radio receiver.

Most radio sets today have automatic volume control circuits. This is a means whereby part of the received carrier is rectified and sent back as grid bias to the intermediate frequency or radio frequency tubes in the set. This AVC voltage can also be amplified and used to hold up a relay which, upon releasing, can sound an alarm. The alarm, if wired into the central office circuits, would be "fail safe." If the key station, the local receiver, or the ac power failed, the alarm would sound.

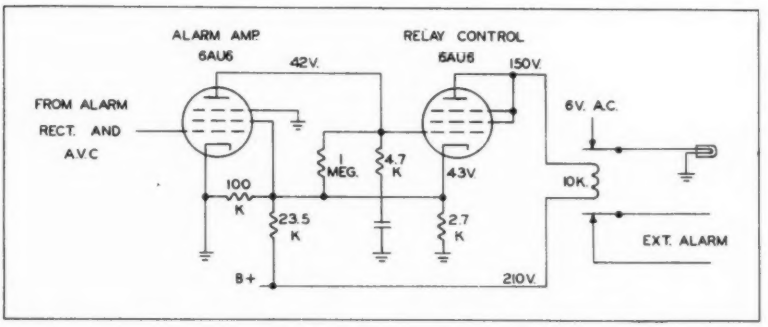
One manufacturer is now supplying a "Conalert" receiver designed for such use. In addition to the above features, it is fixed to tune to the key stations only. It has no dial which can be accidentally tuned to the wrong station. It will, however, once a CONELRAD alert is on, permit the operator to tune to 640 or 1240 kc, to receive the civilian defense information.

Aural Reception

In operation, the set is silent unless purposely turned to aural reception. When the alert occurs, the carrier of the key station stops. After a 2½ second delay, the receiver relay drops, lights an alarm lamp, and sounds any external alarm that might be connected to it. At the same time it connects up its own speaker so that the 1,000-cycle tone may be made audible and so that the spoken announcement can be heard.

This is another "fail safe" provision. If the carrier fails because of difficulty at the transmitter or because a tube burns out at the receiver, the alarm will sound but no tone or spoken warning will be heard. This will, therefore, identify it as a false alarm, but warn the maintenance people to repair the set or switch to another key station.

Another feature of this set is an electronic lockout. Once the alarm has sounded, the relay grounds out its own amplifier so that it must be reset by manually operating a switch.



Simplified schematic of a CONELRAD alert circuit on a radio receiver. When a carrier is being received the AVC voltage biases the grid of the amplifier tube. The voltage drop across the 1 meg plate resistor then supplies positive bias to the direct-coupled control tube. The resultant current flow in the control tube holds up the relay. If the carrier stops, the AVC voltage and bias stops, permitting the amplifier tube to draw more current. The drop in the 1 meg resistor increases, making the grid of the control tube more negative. Current flow in this tube stops and the relay drops. Voltages shown are for a no-carrier condition.—Drawing by Victor Willard from a Kaar Engineering Co. circuit.

An outline of FCC requirements for CONELRAD in the industrial and land transportation services may be found in Parts 11 and 16, as amended, of the FCC rules and regulations. Part 11 may be obtained for 20 cents and Part 16 for 10 cents from the Superintendent of Documents, Washington 25, D. C. Further details of the "Conalert" receiver may be obtained from the Kaar Engineering Corp., 2995 Middlefield Rd., Palo Alto, Cal.

DRY CEMF CELLS

THE VERSATILE selenium rectifier has been adapted to a new use in the telephone plant. The characteristics of selenium cells are such that the internal resistance of them decreases rapidly with current flow. As a result, the voltage drop across them varies but little for wide changes in current flow. This suggests their use as voltage regulators, particularly as CEMF cells.

The counter EMF cell is often used in telephone power plants to regulate the battery voltage under charge conditions. In practice, these cells are placed in series with the central office battery, then shorted out by power type relays. Automatic equipment removes the short from around each cell as the voltage rises. The CEMF cell then opposes the battery voltage and reduces it to normal. In larger plants, the CEMF units are usually caustic type liquid filled cells. They have an additional hazard of giving off explosive vapors.

The selenium dry plate cell will have a voltage drop determined by the number of plates in the stack. It requires no maintenance and is reasonably stable with age. A four-plate cell will provide a drop of about two volts, and can be used as a direct replacement for wet type CEMF cells. Shorting out a plate will give a slightly reduced voltage drop if required. Additional information including voltage drop curves can be obtained from Lorain Products Corp. of Lorain, O.

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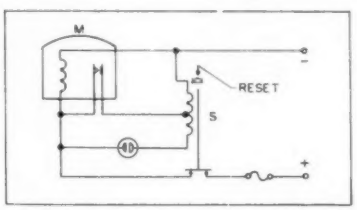
PROTECTED METER

A VOLT-OHM-MILLIAMETER with overload protection is now available for radio and telephone technicians. Designated as the Hickok Model 455, it features a patented circuit which prevents damage to the meter under most overload conditions. Those who have used test equipment know how easy it is to forget to change the range of the instrument and connect it to a high voltage while it is set for a low voltage. Such mistakes often result in a burned out meter movement.



This meter protection circuit uses a Solenoid S to open the circuits when safe voltage or current limits are exceeded. The neon lamp acts as an electronic trigger when the applied voltage exceeds the firing point of the tube. Contacts within the meter M supply additional protection as does the fuse. This is a partial schematic only, the voltage dividing network is not shown. —Drawing by Victor Willard from a Hickok Electrical Instrument Co. circuit.

The protection circuit is designed to prevent this. It consists of a capacitor and a neon lamp unit as voltage sensing devices, together with a solenoid type circuit breaker. If accidentally connected to a voltage or current source which would be likely to damage the meter, the circuit breaker will operate, opening the circuit. It must then be reset manually.

In addition to the electronic protection described above, a set of special contacts operate from the needle of the instrument. These contacts also operate the protection feature and in addition supply a certain amount of cushioning effect to the needle, so it is not likely to be bent. The instrument also is equipped with the usual fuse to protect against low voltage-high current overloads. The electronic protection works for ac or dc on all scales where damage would otherwise result. It is effective for off-scale thrusts of the needle in either direction, but will operate in off-scale situations where the meter is in no danger of burnout.

VOLTAGE REGULATION BY SERVO-MECHANISM

RELIABLE circuit operation requires reliable powerline voltage. It has been established that electron tubes will last a lot longer if operated at slightly less than their rated heater voltage, if this voltage is held constant. Performance of any electronic device will be improved if large plate current voltage swings can be prevented.

Because power line voltages vary unpredictably as the load changes up and down the line, vacuum tube apparatus often has voltage regulation devices built into it. Most such regulatory devices have shortcomings of one sort or other.

A regulating system which is designed to control the ac power before it reaches the electronic equipment is described in the November, 1956 issue of the *General Radio Experimenter*.

This equipment features a thyratron control unit, a servo-motor drive, a variac and a transformer. Only one type of control unit is needed for a wide variety of capacity requirements. By changing the size of the transformer and variac only, loads of widely different sizes can be handled.

The transformer is connected in "buck-or-boost" fashion. That is, it does not have to handle the wattage of the whole load, but only the change in wattage required by the voltage correction made. One winding is connected in series with the load. The other winding is connected across the line, under control of the variac. The variac in turn is adjusted by means of a servo-motor.

The servo-motor principle uses a two-phase motor connected to a single phase source. Under these conditions, the motor not only will not run but the rotor remains locked in position.

Control Unit

The control unit for this regulator samples the ac voltage being received and compares it with a voltage standard tube. Any difference is converted to dc and this dc bias distorts the wave form and changes the firing point of the tubes. Actually, a smooth transition can be achieved, and by changing the applied dc, the thyratrons can be made to change their firing angle over a range of 180°. This phase-shifted voltage is applied to one of the two windings of the servo-motor. The other winding is supplied with voltage in which the phase has not been altered.

As a result of all this, the current in one winding is out of phase with the other. Under this condition, a two-phase motor will turn. When it turns, it moves the variac, which is a type of continuously variable autotransformer. The variac changes the voltage in the buck-or-boost transformer. When the voltage is thus brought to normal, the difference voltage in the control circuit disappears, the dc stops and the current from the thyratrons to one winding of the servo comes into phase with the other winding. This acts as a brake and stops the motor.

PULSE STRETCHER

EVER since dots and dashes have been sent over wires, there has been trouble with these pulses losing their shape as they travel. Just as speech or music can deteriorate in quality by encounters with inductance, ca-

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pacity, and leakage so can pulses get mangled. It happens to all kinds of pulses—dial pulses, telegraph, teletype, and computer or data pulses.

Among the things that can happen to a pulse is that it may become shortened or lengthened or changed in shape or amplitude. Many different devices have been used to correct this. Telephone men are familiar with Teletype pulse-shapers and range switches, dial pulse correcting long-line equipment, and the percent make/break adjustments that must be made on switching apparatus.

One of the principle requirements in pulse equipment is that of lengthening pulses which have been shortened in transit. Often, means must be devised to lengthen or stretch a received pulse so that it will last long enough to operate some piece of equipment. This cannot always be done by lengthening the pulse at the transmitting end because this might make the break interval too short, and successive pulses might merge together when retarded by line or equipment reactance.

Among the previous electronic approaches to the problem have been the use of blocking oscillators or multivibrator circuits. TV receivers use circuits like these on the pulses received. The trouble with this approach is that these circuits actually generate a new pulse of their own. It can be lengthened or shortened as required, and its amplitude can be fixed. However, because it is a new pulse, it will not repeat the relative amplitude of the original pulse. For instance, if light and heavy pulses (low and high voltage) were received, the output pulses would all be the same voltage, even though their length may have been changed.

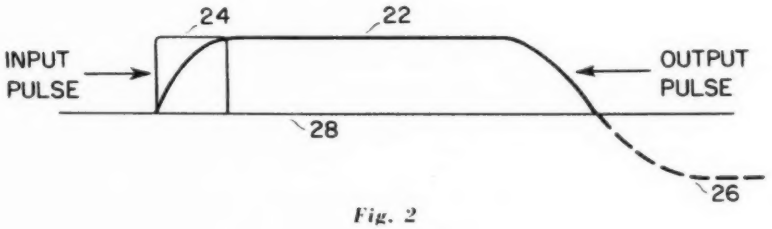

Fig. 2

Delay Line

A new invention gets around this by making use of a delay line. This is an artificial line composed of coils and capacitors which electrically resembles a transmission line. By changing the size of the components, the length of time it takes current to travel from one end of it to the other can be changed. Delay lines are widely used in electronic circuits.

The new invention consists basically of a tube which feeds the delay line as a cathode follower. It couples through the line as shown in *Fig. 1*. Units 6 are non-linear devices, such as crystal or dry-disk rectifiers. The coils are numbered 2, and the capacitors are 4.

When a pulse is received, it is transmitted through the crystals and permitted to charge all of the capacitors. When they are charged, the applied voltage also appears at the "output pulse" terminals. This voltage will remain on as long as the condensers are charged, even though the charging pulse is discontinued. The rectifiers (6) prevent the charge from leaking off back through the charging path.

Wire number 8, however, acts to short the capacitors out to ground. In actual practice, the capacitors will discharge step-fashion to the right. This will appear as a negative step of voltage which discharges each capacitor along the line. The coils slow this action down and lengthen the time that voltage remains. When the last capacitor is discharged, the output voltage is zero and the pulse is ended.

The action in this device is shown graphically in *Fig. 2*. The input pulse, the thin line marked 24 is of short duration; but the output pulse 22 is "stretched" to the desired length by the proper choice of coils and capacitors. Base line 28 represents zero voltage and the negative going curve 26 is the double amplitude tendency which occurs when the discharge wave meets the open end of the line. A negative pulse does not result, however, because current in this direction is grounded out through crystals 6 and 16, which conduct in this direction.

The invention is the patent (2,764,-678) of James Craib, assignor to the Airborne Instruments Laboratory of Mineola, N. Y.

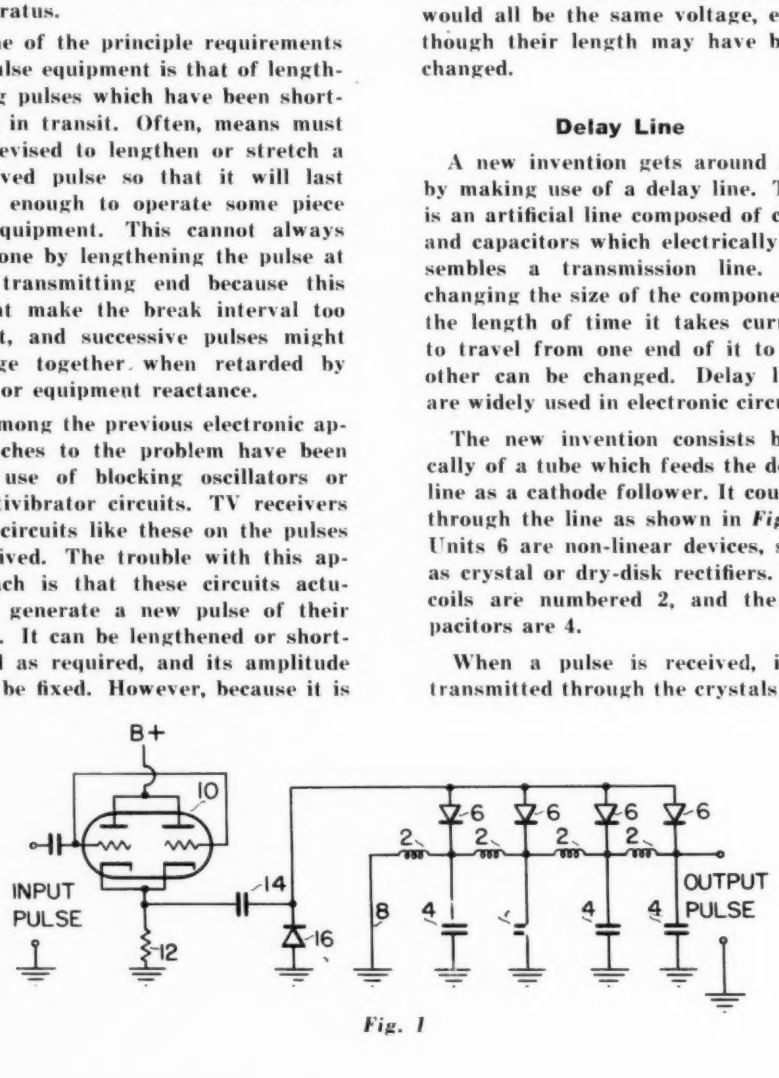

Fig. 1

Mississippi Newspaper Editorial Upholds Company's Need For Rate Increase

IT IS SELDOM that a newspaper in an editorial upholds a telephone rate request at such length as did the Jackson (Miss.) *Daily News* (on Dec. 1) regarding the Southern Bell Telephone & Telegraph Co. application for higher rates in Mississippi (TELEPHONY, July 14, p. 35; Oct. 13, p. 40).

The *Daily News* editorial explained why the company was entitled to a more equitable rate of return. The main points the newspaper made were: the present return on investment has been depressed through inflation below a level which is fair; also, obtaining necessary capital for planned expansion is difficult if rate of return is low.

Whatever inflation Southern Bell is experiencing is felt by every other telephone company in the country, so TELEPHONY believes the following editorial comment will be of value to other companies, Independent and Bell alike:

"The Mississippi Public Service Commission now has under advisement the petition of the Southern Bell Telegraph & Telephone Co. for an increase of rates in this state, said to amount to 2½ million dollars per year.

"The hearing before the public service commission was conducted in a very thorough and efficient manner, and neither side can complain it was not given full opportunity to present its case.

"Chairman Rubel Phillips presided throughout the long hearing with fairness and with the dignity and finesse of an experienced jurist. He inspired and received the respect of all involved. All the facts have been developed thoroughly under the guidance of capable counsel representing both the commission and the telephone company. The voluminous record of the evidence presented has been transcribed and is now in the hands of the commissioners for their study.

What their decision will be is, of course, unknown, but, no matter what the decision may be, the telephone rate payers of the state of Mississippi will be satisfied with it. A full and complete investigation of the telephone rates was made and the decision should be in accordance with the facts.

"Although much has been said, there is in reality nothing complicated about telephone rates. The telephone company is a business just like any other business. A million and a half people, many of them widows and orphans, have invested their savings in the telephone stock, expecting to receive earnings from it. Many of these people are dependent upon these earnings for their sustenance.

"Under our free enterprise system these one and a half million people are entitled to receive a fair and reasonable return on the money they have invested.

"The telephone company, which owns the property and which furnishes the telephone service to the people of Mississippi, is entitled in all fairness to a fair and reasonable return upon the value of its property which it owns and uses to furnish the service.

"There is no difference in the telephone company and any other owner of property or business. A man who owns business property worth $100,000 is entitled to receive sufficient to pay the taxes and insurance and maintain the property in good repair, and in addition he is entitled to receive a reasonable return on his property.

"There is no cause for astonishment because telephone rates have gone up in the last several years. The price of everything else has gone up at least as much. The house you could build a comparatively few years ago for $10,000 now costs you $30,000 to $40,000 to build. An automobile you could buy just a few years ago for $700 or $800 now costs more than $3,000. These are just examples.

"The cost of everything the telephone company has to buy is sky high. Its labor costs are constantly rising. Significant testimony in the hearing before the commission showed that the average telephone installed during the period 1948 to 1956 cost the company $303; the average telephone installed in 1955 and up to June 1956 cost the company $380; it is estimated that the average telephone installed in 1957 will cost the company $492—a steady and constant increase. So, there can be no wonder that the rates, along with everything else, must go up.

"There would be nothing complicated about fixing reasonable rates for the telephone company—or for any utility company—just such rates as would permit a reasonable return on the company's property—if it were not for these so-called rate 'experts' who for a fee, quite often wasted, inject themselves into rate hearings and undertake to furnish palatable panaceas and miracle nostrums for all rate ailments.

"They most often call themselves 'public utility consultants,' a very high-faluting title but it is of fact that few of them had any training or experience which qualifies them as a person having superior knowledge in the field in which they pose as experts.

"One of these 'experts' appeared before our own commission with a number of confusing nostrums for which he was paid a substantial sum of money. This 'expert' admitted that he had never been in the banking business or the investment business; that he had never been responsible for the management of a large corporation of any kind, and particularly a telephone business; that he had never been responsible for the financing of any business of any magnitude; that he had never undertaken to dispose of the stocks, bonds or securities of any business enterprise; and that he had never been confronted with the raising of the capital for any large business enterprise.

"Both the public and our governing authorities are justified in attaching little importance to the testimony of 'rate consultants' and X-spurt (*sic*) witnesses because they are nearly always highly opinionated, intolerant, and very much peeved when one is inclined to refuse to take what they say at their own estimate of its value.

"One impressive bit of testimony was that of Mr. R. R. Stubbs, a native Mississippian, now a vice president of Southern Bell, to the effect that Southern Bell plans to spend in the state of Mississippi during the years 1956 and 1957 in plant construction approximately 34 million dollars. . . .

"Mr. Stubbs then pointed out that the company was earning only 3.92 percent on the reasonable value of its property devoted to intrastate telephone service in the state of Mississippi, and that it had recently borowed 60 million dollars at an interest cost of 3.97 per cent.

" 'We cannot reasonably be expected to make capital investments for a return of 3.92 per cent when the cheapest form of capital obtainable is costing us 3.97 per cent,' he said.

"The inference and the logic of this testimony is inescapable.

"Mississippi is a great and growing state. We are spending thousands of dollars to encourage industry to come to our state. Our BAWI board has

done outstanding work in this field. Anyone with the sense that God gave green goslings knows that no industry will come to this state unless it has reasonable assurance of fair and honest treatment by the state.

"Southern Bell is providing this state with the finest telephone service that modern progress and the ingenuity of man has been able to devise. This program must continue. Southern Bell's present plans call for the expenditure of 34 million dollars in Mississippi within the next two years. This money must be raised by selling bonds and stock.

"If Southern Bell is denied proper earnings in Mississippi, anyone can see that it won't be able to raise this needed new capital. No one wants to put money into a business that cannot earn its way. Mississippi's economy will suffer if this very important and useful utility service cannot keep pace in Mississippi with the developments in other southern states.

"The leading business men in Mississippi are well aware of this fact. Three of the most prominent bankers and investment men in the state appeared voluntarily before the commission to testify to Southern Bell's need for adequate revenues.

"These three men are Russ M. Johnson, executive vice president of Deposit Guaranty Bank & Trust Co., Jackson; Jim Leavell, a retired banker and industrialist and former member of the state BAWI board, of the Mississippi Coast; and W. H. Mounger, assistant vice president and state manager of Equitable Securities, one of the largest security dealers in the state. When men of this character are willing to take the time to make a study and have come up with this conclusion, it might well be accepted.

"Mississippi is pledged to give fair treatment to business and industry. The public utilities are entitled to the same fair and honest treatment at the hands of Mississippi officials now being promised to new industries. That is all the utilities want and is what they have a right to expect. That is what the great majority of the people of the state of Mississippi want them to have."

North Dakota Cooperative Announces New Manager

Paul E. Knapp is the new manager of the Dunn Mutual Aid Telephone Co-op, it was announced by Leonard Davis, president, recently.

Mr. Knapp has been office manager for the telephone cooperative at Carrington, and formerly was office manager for the telephone co-op at Circle, Mont.

Reports U.S. Free Enterprise Failing to Get Message Across

FOR THOSE Independent companies carrying the free enterprise story to the schools, and others as well, TELEPHONY here reprints from the Chicago *Sun-Times* an informative progress report on the conception which today's youth has of the American business system. We quote:

"Big businesses run everything in America—they have all the money." This reaction of a 16-year-old high school girl in Tucson, Ariz., sums up the attitude of many young people toward big business. Our organization queried 1,923 youngsters of high school age in 42 cities through the country to find not only what their opinions were but also their knowledge of the major industries of this country.

The youths were asked: Tell me everything that comes to your mind when you hear the words "big business." Nearly 31 per cent of those interviewed thought of big business in a negative sense, as sort of a giant monopoly spread across America. They feared the future will see all free enterprise swallowed up in one or two gigantic trusts.

The consensus was that within the next decade and a half there will be one or two large companies representing each individual industry.

All this sounds more like an account in a Russian newspaper than a report about American secondary school students' views. However, these are their reactions. The lack of information among teen-agers about some major industries comes at a time when companies are spending more and more money on school materials and educational literature such as films, books, displays and charts.

Some corporations have entire divisions set up for the development of aids to promote better understanding among school children of their products and services.

But somehow or other the free enterprise message is not getting across. The schoolboys of today will have many misconceptions to unlearn if they are to grow up to be the industrial leaders of the 1980's.

And it would seem a wise procedure for more industries to re-examine the ways of getting facts across to teenagers and to plan educational programs that will illustrate the factual story of American industry.

For instance, in another study of 5,403 young people, our organization found that one out of three teen-agers thinks that electric and telephone companies make between 25 and 49 cents on every dollar of income, and one out of 10 thinks they make 50 cents or more.

Furthermore, practically 40 per cent of these young people think that oil companies make more than 30 cents per dollar, and one out of nine thinks they make more than 50 cents or more. As an example of how these opinions stack up against industry figures, the Consolidated Edison Co., a huge utility serving the New York metropolitan area, reports 10.6 cents of each revenue dollar represents profits after taxes.

Similarly, the American Telephone & Telegraph Co. reports its Bell System, which operates 48 million of the nation's 56½ million telephones (as of Dec. 31, 1955), gets about 12 cents of each revenue dollar after taxes. Standard Oil of New Jersey, which engages in all activities of the petroleum industry in many parts of the world, says its profits have been averaging 10 and 11 cents of the revenue dollar for several years after taxes.

From these figures and the comments of teen-agers on the nature of big businesses, it is obvious that youth has no conception of American industry and knows even less about the nature of stockholders. This is aptly illustrated by the fact that only 19 per cent of the youngsters interviewed could even vaguely define the term "common stock." Few had any idea how many stockholders own shares in a large company, thereby missing a vital element in their insistence that "America is run by big business." . . .

Obituary

DAVID LEVINGER, 69, of La Grange, Ill., former vice president and works manager of the Western Electric Co.'s Hawthorne plant, suffered a fatal heart attack on Dec. 9 in Chicago.

He retired as works manager in 1952, after 42 years with the company. He began his business career as a news carrier in Chicago at the age of 8, and was compelled to quit school in the seventh grade.

He spent the next 15 years attending night school, acquiring an engineering education.

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today's Highlights

of finance-taxes-business trends

by Willard F. Stanley

MONEY RATES ON HIGH PLATEAU: The high plateau for money rates in all categories of debt held fairly constant during the past month. There were indications of a slight loosening of the pressure of tight money in the long-term division. But the double-A-rated Florida Power & Light issue was recently offered at about the same yield (4.3 per cent) as the Public Service of New Jersey issue (also rated double A) offered a month earlier.

There's been some improvement in the average bid prices for new utility debt issues as compared with average original offering prices. Dec. 13 tabulation of the Wall Street Journal shows that for 11 utility bonds, the average bid prices exceed original offering prices by about three-quarters of a point, which is equivalent to a lowering of interest yield by about 4 decimals (.04 per cent per annum). Of the 11 issues, five were bid over a point higher than the offering price, bids for three issues were more than a point below, and bids for the other three were within the one point range. This tabulation shows a turnabout in these figures, which had been showing unfavorable comparisons for several months back.

Most economic and financial experts are predicting a continuance of the high interest plateau well into next year, perhaps for the first half. It's difficult to predict further than that with any accuracy. Recent announcement of over-all estimated capital expenditures for plant expansion, etc., in 1957 indicates a 10 per cent increase above 1956. If this should eventualize, it is difficult to see much relief in the money markets for some time to come.

If the greater part of the expansion were compressed into the first half, rates might be lower later in the year. With international uncertainties multiplying and continuing, plus numerous other factors the effects of which are difficult to evaluate, prediction has become unusually difficult. But it's well to remember that business has now been proceeding at full steam ahead for about three years. Current predictions indicate probability of another year at this top speed.

After that, what? At what point will the nation's plant be deemed sufficient for consumers demands? Theoretically the high rate of expansion could go on indefinitely, but there's always been a tendency—in finance and economics as in all other walks of life—for the law of averages ultimately to prevail. So, in time, this extreme trend should slow down, or reverse itself. But "when" is hard to tell, for here we enter the realm of philosophic speculation—a realm not favorable to accurate specific predictions as to timing.

(Please turn to page 22)

Mr. Stanley, formerly financial vice president of Southwestern Public Service Co., an electric utility with over 160 million dollars in assets, is president of Corporate Services, Inc. of New York City. He is a member of Controllers Institute of America and New York Society of Security Analysts. He serves on three committees of the Controllers Institute having to do with federal taxation, social security and finance management. His articles are appearing once a month in TELEPHONY.

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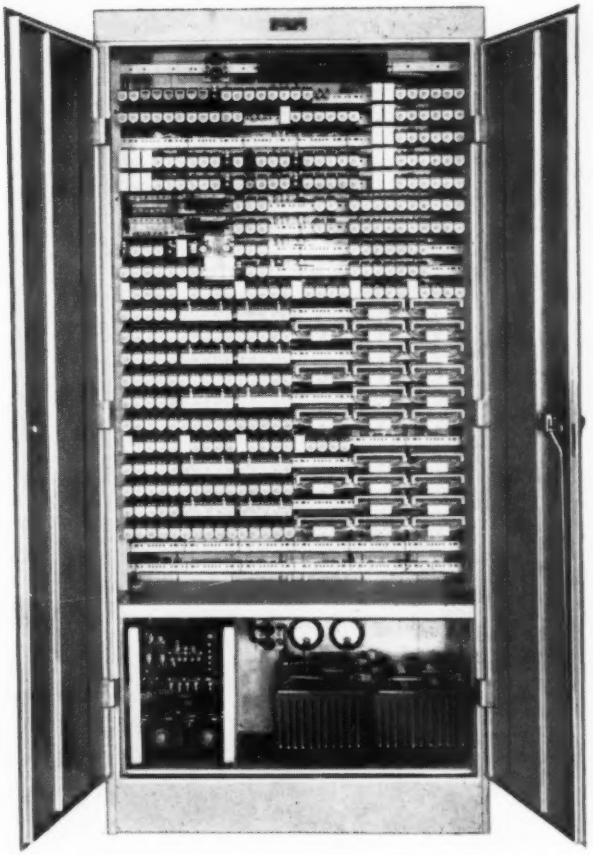

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NORTH ELECTRIC COMPANY

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As of now, there seems nothing better to recommend to utility management than that they sell their bonds, preferred stock and common stock according to normal procedure and when necessary to raise funds needed in the near future. As so often stated, we feel that in the case of common stock issues, current offerings could well exceed near-future needs and extend as far as a year ahead, or even further—to take advantage of favorable price-earnings and yield relationships in the common stock field.

It is significant that most statistics on the amounts of new security offerings (funded debt in particular) are being understated by exclusion of bonds and debentures sold privately to insurance companies and other institutions. The large amounts of public offerings, and consequent increasing difficulties in this field, have tended to shift financing to private placements. Thus, there exists a substantial and increasing hidden supply of debt securities which is contributing to the general extreme tightness of money in this category. So long as the aggregate amounts of public offerings held around present levels, increasing use of the private placement medium seems likely to be the order of the day.

* * * *

JIGGLE IN STOCKS: Stocks continue to jiggle up and down without making much progress either way. In our last report on this subject the New York Times average (Nov. 20) showed an average for 50 combined stocks about 4 per cent below the 1955 close. At Dec. 23 the average for these same stocks was less than one per cent below the year end level, thus registering a net improvement for the past several weeks. Year-end dividends may bring the final 1956 level above last year. However, most of these increased dividend distributions have probably already been discounted, so it wouldn't be surprising if the Times averages ended the year very close to the 1955 figure.

Nineteen fifty-seven is another story, but yields on many stocks still remain so low (by traditional standards) that earnings and dividends must continue to push ahead sharply if the market is to reflect any material advance.

* * * *

PROFIT MARGINS: Control of this item seems the key to future corporate prosperity. Last month we mentioned a 12 per cent shrinkage in this margin for the third 1956 quarter compared with the same quarter in 1955. If this squeeze, due to increased labor and material costs, continues, it will obviously be increasingly difficult for corporations to improve their earnings in 1957 and subsequently. Call for increased automation and installation of labor-saving machinery should continue and this may supply the needed impetus to net income to keep it on the upgrade or at least stabilized.

* * * *

A SPECIAL ITEM: There isn't much new to report on taxes this month so we are deferring comment on that subject to make space for something we feel is of greater moment. Those who are likely to be selling bonds or debentures of their corporations at present high interest levels should use every effort to retain the right to redeem these securities to obtain a saving in interest when conditions in the funded debt market improve. It has become customary, particularly on private placements, for institutions to require (and usually obtain) a five-year minimum period during which no redemption can be made for interest saving purposes. It may be difficult to avoid this restriction, but it's desirable, to do so where possible, even at a small additional interest cost or by some other concession.

The importance of eliminating this restriction lies in the fact that while it may appear, superficially, that such a five-year deferral of the right of redemption would occasion a loss of interest saving to the issuing company only for all or some part of this period, actually the loss of interest could be far greater. If bond yields were substantially reduced, say two years hence, and a refunding at a material interest saving was then prevented by this limitation, it is quite possible that when this restriction expired at the end of five years, bond yields may have risen to a point where either a refunding would no longer be economically feasible, or the interest saving is drastically reduced. And this latter condition could continue throughout the life of the bonds, so that the company, having lost its first opportunity to refund, might not have a second opportunity for many years, or perhaps not until after the bonds matured.

Alaska Submarine Telephone Cable Opened for Use

THE U. S. ARMY Signal Corps and the Bell System on Dec. 11 opened to public service a new and important communications link between the United States and the growing Territory of Alaska. The link consists of an underwater telephone cable system stretching some 1,250 miles from Port Angeles, Wash., to Skagway, Alaska.

Hatfield Chilson, assistant secretary of interior and B. Frank Heintzleman, governor of Alaska, made the first call over the new system. Mr. Chilson spoke from Washington and Mr. Heintzleman from Juneau.

The inaugural call was made over a 4,600-mile telephone network that linked Washington to Juneau and included Seattle, Ketchikan, Anchorage and Fairbanks. At each location, government, military and industry officials participated in the ceremonies.

In addition to Mr. Chilson, the Washington group included Secretary of the Army Wilber Brucker; George McConnaughey, chairman of the Federal Communications Commission; E. L. Bartlett, congressional delegate for Alaska; Maj. Gen. W. Preston Corderman, acting chief signal officer; Adm. J. N. Wenger of the Joint Chiefs of Staff; and William G. Thompson, assistant vice president of American Telephone & Telegraph Co.

The cable system represents two major projects—one provided by the Long Lines Department of AT&T; the other by the Alaska Communication System, which is operated by the Signal Corps.

Southern terminus of the Alaska cable system is located at Port Angeles, Wash. Here submarine circuits are carried by radio relay to Seattle where Pacific Telephone & Telegraph Co. makes connection with Bell System's long distance network.

Route of the U.S.-Alaska cable.

The AT&T cable system extends from Port Angeles to Ketchikan, Alaska, a distance of about 900 miles. Twin cables, containing built-in amplifiers, lie in the ocean depths off the coast between the two points. These cables were placed by the Cableship Albert J. Myer between early June and late August. They are similar in design and construction to the transatlantic telephone cable system—the first such system to cross an ocean—which went into service in September.

The ACS cable, which covers the 400 miles between Ketchikan and Skagway, is a single submarine cable stretching along the inland waterway on the southern coast of Alaska. This cable utilizes amplifying stations that are located on islands or points of land that dot that area.

From Port Angeles, the southern terminal, the cable circuits are connected to the U. S. network at Seattle by a radio relay link recently constructed by The Pacific Telephone & Telegraph Co. At the northern end, beyond Skagway, the circuits are fed into the Alaska communications network, operated by ACS.

The system took over two years to build. It can carry 36 conversations at one time and will be used to supplement the radio-telephone and land line facilities that have been operating between the States and Alaska since 1937.

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AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

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Section 26 (continued)

We like to think we are different. Many say they do not object to constructive criticism—but they are a rare person indeed, and it must be a rare occasion when they do not go on the defensive when criticized, making excuses for the things they are being criticized for—their shortcomings. They are no different than others. It's just normal human nature.

You must have pride in the way you do your job, if you are to do good work and enjoy it. You must realize that the method you use in dealing with other people is very important. Do not criticize or correct a girl impulsively. Take time to plan your interview—think carefully how you can help your attendants without hurting their pride. When it is necessary for you to talk to an attendant about her work, perhaps a suggestion would serve your purpose better than a criticism.

A PBX attendant's objective is to give her company and its customers accurate, dependable, fast and courteous service. Your responsibility is to see that she does just that. But you have another objective and that is—fair treatment to each and every attendant. You want them to like their work and to be supervised in a way that is agreeable to them.

Could we withdraw all supervision and get the job done? The answer to that is simply—no we could not! Most attendants realize that they need help and they seek and welcome it; they expect you to hurry to their assistance when they call you. There is a point that you need to get established clearly in your PBX attendant's mind—that in all kinds of work, inspection takes place. But in a service like you supervise, you cannot pick the product up and examine it at your leisure. It is necessary for you to inspect the work while it is being performed.

You must convince the attendant her job is to give fast, courteous, dependable service. You can do this in a manner that will win the cooperation of the attendant. Explain new practices clearly and thoroughly and give the reasons for them. Be patient and willing to remind the girls until they form good habits. Don't be too repetitious. Overlook the occasional slip and don't talk about petty, unimportant things. The word "criticize" is harsh. It suggests fault finding, although that is not the intent of the word. One of the dictionary explanations of the word is, "The art of judging with knowledge and propriety."

It would be well to remember this about criticism. Before you criticize what is bad, try to get results by praising what is good. If you are quick to criticize, and if you get satisfaction out of doing it, "Watch out"—you are on the wrong track. If you dislike criticizing others it is good! When you do have to criticize, do it by suggestion rather than by censure.

Appreciation and Praise

It is sometimes pretty easy to get into the habit of looking for what is wrong. Those who form such habits get very little enjoyment out of life. Then, too, they make themselves unpopular. It would make the Service Adviser's job much more pleasant if she looked first for opportunities to compliment an attendant. One girl might have a lovely voice. Another may write legibly and neatly. Some do a beautiful job of overlapping, while others handle their calls in an outstanding manner. Then, there is the girl who is always punctual and seldom absent. If commendation is deserved and it is sincerely given, it is very much worthwhile. But do not commend a girl for something that does not deserve a compliment.

The average person looks for praise. That is why, in dealing with people, praise is one of the most important tools a supervisor has to work with. Even the most confirmed "crab" looks for and esteems genuine praise and appreciation.

Let us glance at some interesting facts about the job of operating a PBX:

Most calls are completed.

There is a high degree of accuracy.

The answers are generally prompt.

The call that does not go through promptly, accurately and courteously is the exception, not the rule. Even so, how much of your time is spent on discussing what is right? Of course, you have no statistics that will give an answer to this question. But you will agree that by far, most of your time is spent on discussing what is wrong.

Is it because you spend so much attention and time on what is wrong that the PBX attendant gives good service? After all, attendants are supposed to do their work correctly—should it be necessary to pat them on the back when they do so? Let's answer that one this way—everyone needs to be encouraged if they are to persevere, stick to the job and do good work. That is how pride and satisfaction is built into the well-done job. It takes very

little time to compliment an attendant. It takes much longer to make suggestions, to work toward improving the service. Most of our time should be spent on training and helping the attendants do their work as nearly perfectly as possible.

When you commend an attendant, phrase the compliment carefully. Be sincere and avoid exaggeration. Have variety in the way you express praise but be specific. It is one thing to tell a girl her technique is perfect, but quite a different statement when you say her work is perfect. Be sure to say what you mean.

Let us really "go to town" on this matter of commending PBX attendants. Sure, you will have your ups and downs—not all compliments will react the way you want them to at first. But keep it up and you will be greeted by the most pleasant surprise you could imagine.

Requesting Instead of Ordering

Everyone dislikes being underestimated or talked down to and certainly the average person doesn't like to be bossed. Yet there is a definite need for guidance and direction. In fact, it is expected from those who lead. In an effort to save time, you may sometimes give orders instead of making requests. Even so, looking at it from a purely good relations viewpoint, it is courteous to request.

No one likes the person who wants to rule every situation—the abrupt person who speaks sharply. The "bossy" person displays a "know it all" attitude and acts as though she is not as liable to make mistakes as is the girl to whom she is talking. The "bossy" person seldom asks for opinions or suggestions. She sometimes acts "superior" to others, giving little consideration to the other person's feelings.

Avoid the unpleasant consequences of being considered "bossy." Remember, your title as Service Adviser does not make you superior to others. You and your PBX attendants are partners in giving service and you should work as a team. Be alert to get the opinions of others and listen to the suggestions of your PBX attendants.

Learn to use such phrases as:

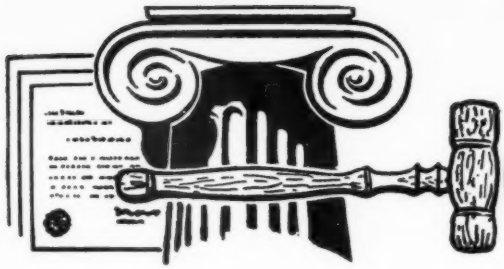
"Do you mind?"

"Will you?"

"Would it be convenient?"

"I would appreciate it very much if you would."

(Section 26 to be continued next week)



Courts and Commissions

Assess Damages Due to 'Reckless' Telephone Calls

A Denver, Colo. couple were assessed $3,525 damages on Dec. 14 in the Denver district court for "invading the privacy of two homes by making repeated telephone calls to them and using abusive language."

Judge Albert T. Frantz, following a week long trial, found Mr. and Mrs. Lewis C. Backus guilty of "reckless" conduct in making the numerous telephone calls to two Denver families.

The calls, numbering 5 to 30 within a 12-hour period and extending through the early morning hours, were made from the fall of 1954 to April 1955, when the court entered a temporary restraining order.

Judge Frantz termed the case "stranger than fiction" because at the conclusion of the trial he still could not determine what motivated the Backuses to make the nuisance calls.

Victims of the calls and plaintiffs in the civil suits were Mr. and Mrs. Paul D. Cooper and their former next-door neighbors, Mr. and Mrs. Edward F. Vance.

They were awarded the judgment against the Backuses for "mental anguish, annoyance, loss of sleep, disturbance in the home and slander."

Private detectives traced the calls to the Backuses after Mrs. Vance got the license number of a car that kept driving by her house. Backus gave the detectives a signed statement admitting the calls. He claimed his wife forced him to make the calls.

The Backuses in defense made a flat denial of the plaintiff's accusations. Backus claimed he signed the admission statement under duress.

Judge Frantz held that while a telephone is a lawful instrument, the use to which the Backuses put it, rendered its use by them unlawful.

"Ordinarily the use of abusive words is not actionable in the courts," he ruled, "but there are circumstances where it could be and here was such a case."

The judge told the Backuses he was imposing punitive damages so that anyone who contemplates doing the same type of thing will know they will be punished.

Judge Frantz pointed out that beside the disturbance caused the plaintiffs throughout the day by the calls, their children also were upset. He also made permanent a restraining order issued on Feb. 11, 1955, forbidding the Backuses to telephone either family.

Two Pennsylvania Companies Gain Approval of EAS Plan

Extended area service (EAS) was put into effect on Dec. 16 by the Lycoming Telephone Co., Pine Grove, between its exchange at Trout Run and the Bell Telephone Co. of Pennsylvania's Williamsport exchange. Elimination of the toll charge between the two exchanges was approved on Dec. 4 by the Pennsylvania Public Utility Commission.

Under the EAS arrangements, monthly rates will be increased for 480 Trout Run subscribers, while those for the 22,000 Williamsport subscribers will remain the same.

In addition, Lycoming Telephone Co. also effected EAS between its Trout Run and Brookside exchanges, the latter serving 71 subscribers.

Two Mo. Companies Given OK To Finance Improvements

Granby Telephone Co. on Dec. 4 was given Missouri Public Service Commission permission to borrow $66,000 to improve its newly acquired exchange at Diamond.

The commission authorized the Granby company to borrow the money at 5¼ per cent interest, maturing in 20 years. Included in improvements would be conversion to dial service.

The commission also authorized a new company, Conway-Niangua Telephone Co., to borrow $70,000 at 5¼ per cent to make improvements and to issue 500 shares of no-par common stock plus 200 shares of 6 per cent cumulative preferred stock at no less than $50 a share.

Seeks to Raise Rates in Illinois

The Illinois Commerce Commission on Dec. 27 is to hear the application of the Woodlawn Telephone Co. for permission to increase rates on the principal classes of service.

California Company Seeks To Market Bond Issue

California Interstate Telephone Co., Bishop, has asked the state's public utilities commission for authority to sell 1½ million dollars in 5¼ per cent first mortgage bonds, due 1982, it was reported on Dec. 14.

The company proposes to sell the bonds to five insurance companies at par. It plans to use the proceeds for discharging promissory notes and for construction and improvement of telephone facilities.

Newly Organized Ky. Co-Op Appoints Manager

The Duo County Telephone Cooperative has taken over the facilities of the Russell Home Telephone Co., Jamestown, Ky. and became an active operating organization, it was reported recently.

C. D. Ramsey has been appointed manager of the cooperative and is setting up offices in Burkesville, Ky.

Mr. Ramsey has been working in the rural telephone field since 1950, having participated in the organization, development and construction of the North Central Telephone Cooperative, Lafayette, Tenn., the Twin Lakes Telephone Cooperative, Gainesboro, Tenn., and the Highland Telephone Cooperative at Sunbright, Tenn.

The cooperative is governed by a board of seven trustees, which is composed of John Brake of Burkesville, president; L. A. Miller of Burkesville, secretary-treasurer; Phillip Radcliffe, representing Cumberland County; Frank Lancaster of Sparkesville; A. W. Reece of Jamestown, and Hollie Edwards of Russell Springs. There is a vacancy on the board at this time.

Link India with Ethiopia

Direct radio-telephone service between India and Ethiopia was inaugurated recently, bringing the total number of countries with which India is linked directly by radio-telephone to 19.

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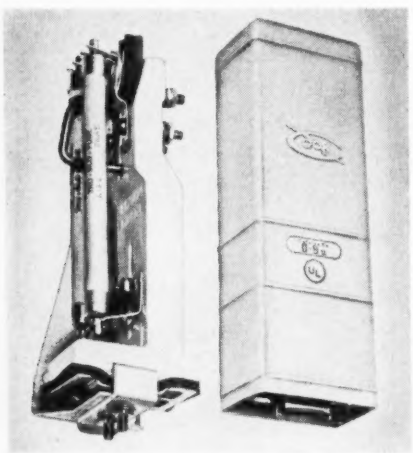
by Ernest P. Riviere, Jr., Inside Sales—San Francisco

The other day I chalked up my 5th year with Stromberg-Carlson—but one of the orders I filled that day made me feel pretty much a youngster in the business: I sent out a battery we promise will serve you for 25 years! That started me thinking about other equipment we supply. Here, the guarantee is a quarter century—there, it's for life, **period.** And always, the guarantee is a double one—ours, and the maker's. It made me realize again how much your orders mean to the science of telephony. It's your supply business that helps us continue our research for ever-better, ever-longer-lived telephone equipment. Thanks a lot!

Protect telephones from lightning

No larger than a good-size candy bar is the Cook 09u telephone protector shown here. But it can save you a lot of grief and you can protect single circuits, both indoor and out.



Individual circuits are protected by small unit, measuring 6"x2½"x1¾".

The body is a single piece of heavy white glazed porcelain. Lightning arrestors are two Tru-Gap dischargers, two flat carbons mounted on a copper ground, and two A-9u 7-amp. lavite fuses. Neoprene gasket locks out insects, dust, snow, etc.

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Ankoseal Type 775-AP Direct Burial Cables offer you the added protection of two .013" aluminum alloy flat armor tapes, plus an overall jacket of Ankoseal plasticized PVC over the standard Type 775-P Cable. The armor tapes give additional shielding.

Layers of protection make Ankoseal Direct Burial Cable ideal for low-cost underground placement of outside cable plant.

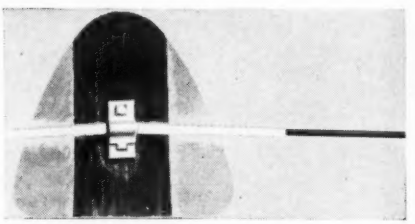
With its flexibility and light weight, Ankoseal Direct Burial Cable permits quick placement in trenches or by means of cable plows with small crews.

Protects plastic cable from pressures, abrasion

Ties, clamps, trees and other objects are rough on plastic-covered self-supporting cable.

The perfect protection is a Preformed Line Guard—available in metal or plastic.

Metal line guards are specially useful for supporting cable at poles. They are a must for tangent supports. They spread the pressure around – preventing slippage and preventing damage to the plastic covering.



Available in standard 6-ft. lengths. Other lengths on request.

Plastic line guards are ideal for protecting and insulating conductors that pass through trees, close to buildings, or over other lines.

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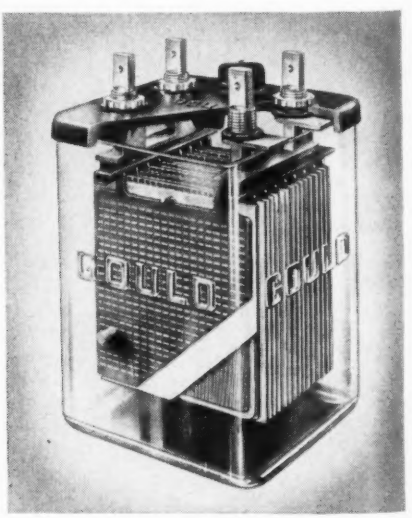
Because Planté batteries practically last forever...providing standby power that never fails...they're the best operating insurance you



A sure, dependable supply of power when you need it. That, briefly, is the story of this Gould Planté battery.

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can buy. In switchgear, signal and alarm systems, or emergency light and power applications, these lead batteries have rolled up amazing performance records . . . are famous for their ability to deliver a powerful surge or a steady flow of current the instant it's needed. Make sure you're in operation . . . always. Choose Gould Planté.

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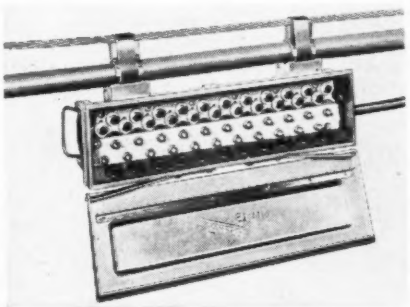
Available with both plastic and lead stubs.



Eleven-pair terminal, like other type ST terminals, may have entrance at either end.

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John Sidlo of Ohio Retires After 47 Years

After 47 years of continuous service in the telephone industry, John Sidlo, Cambridge, O., division manager of the Ohio Consolidated Telephone Co., announced on Dec. 17 his retirement from active service with the company, effective Jan. 1.

In 1909 he began his telephone career with the Western Electric Co. in Chicago. Later he was associated with the old Ohio State Telephone Co. in Columbus. In 1917 he entered the employment of the Kellogg Switchboard & Supply Co. and for 10 years represented the company as a salesman. As a salesman, he contacted mostly Ohio Independent telephone companies.

Having acquired an interest in the Greenfield (O.) Telephone Co., Mr. Sidlo became manager and continued as operating head of that company after its sale to the Gary Group. In 1930 he was elected vice president of the New Concord Telephone Co., and director and manager of the Cambridge Home Telephone Co., both of these companies later becoming a part of the Ohio Consolidated Telephone Co.

Upon the formation of Ohio Consolidated, he became manager of the Cambridge district and later a division manager when the Cadiz district was added to the Consolidated group.

He has been a director of the Ohio Independent Telephone Association and a member of both the Independent and Bell Pioneer associations.

JOHN SIDLO

During World War I he served with the 108th Field Signal Battalion of the 33rd U. S. Army Division.

Polio Vaccination Urged

Salk vaccine for inoculation against polio does no good in bottles at a doctor's office. Make an appointment with your doctor for your series of three shots, the National Foundation for Infantile Paralysis urges. Next summer you will appreciate the safety it provides.

Guests of the Northern Ohio Telephone Co. on the company's Business-Education Day in Norwalk, O. visit the switchboard room on a tour of the exchange led by William C. Avers (extreme left), district manager. Next man on the left is Ralph C. Fisher, assistant district manager, while on the right is J. H. McBride, superintendent of the Norwalk schools. The day's activities also included luncheon and a round-table discussion of the workings of a public utility. According to Paul H. Kaufman, Northern Ohio Telephone's director of public information, the company believes that much of the understanding of its system stems from training in the schools, in which the company has an extensive program.

General of Indiana Names Division Managers

With the merger of General Telephone Co. of Indiana and the Home Telephone & Telegraph Co., Fort Wayne, and Citizens Independent Telephone Co., Terre Haute, and the transfer of the General company's executive offices from Lafayette to Fort Wayne, the company has announced the establishment of six divisions and the re-distribution of exchanges within certain existing divisons.

Effective Jan. 1, 1957 the company's operating territory will be segregated into the divisions designated below with division headquarters and division managers as indicated:

Northeastern division—headquarters, Fort Wayne; division manager, C. D. Ingebrand.

Northern division—headquarters, Elkhart; division manager, C. B. Hansen.

Northwestern division—headquarters, Valparaiso; division manager, P. E. Platt.

Central division—headquarters, Lafayette; division manager, H. R. Christianson.

Southern division—headquarters, Connersville; division manager, G. A. Richwine.

Southwestern division—headquarters, Terre Haute; division manager, C. E. McCormick.

This picture shows six California telephone men who are all presidents of their local Kiwanis Clubs. The photograph was taken at Santa Cruz, Cal., where the California-Nevada-Hawaii district of Kiwanis International Convention was held. The men in the picture are, left to right: Howard Mitchell, president of the Fullerton Kiwanis Club, and Fullerton exchange manager of The Pacific Telephone & Telegraph Co.; Gilbert Johnson, president of the Bell-Maywood Kiwanis Club, and revenue accountant of Pacific T&T; W. B. Nehls, president, the Los Angeles Downtown Kiwanis Club, and accounting assistant general commercial manager of the Pacific company; Keith Vine, president, Monrovia Kiwanis Club, and telephone division auditor of California Water & Telephone Co.; Elton Watson, president, Santa Monica Kiwanis Club, and division manager, General Telephone Co. of California, and Wesley Mason, president University Park Kiwanis Club, and Beverly Hills exchange manager of the Pacific company.

Everybody Is Human

"If the wise erred not, it would go hard with the fools."—GEORGE HERBERT.

TWO VALUABLE TELEPHONE GLOSSARIES

That can be Used by All Departments

1 **GLOSSARY OF TELEPHONE WORDS AND TERMS**

By Emerson C. Smith

A 54-page (4"x8¾") reprint of five installments published in TELEPHONY. It includes definitions of 1,140 words and terms used in the telephone business. It is the only telephone glossary available. The author is a consulting engineer of Honolulu, Hawaii, and has had 26 years of experience in the technical and engineering phase of telephony. 34,000 copies have already been sold, indicating the need for such a volume. Prices are as follows: 1-100 copies, each 50c; 101-1000 copies, each 45c; 1001-3000 copies, each 40c; 3001-5000 copies, each 35c; 5001-10,000 copies, each 30c; over 10,000 copies, each 25c.

2 **GLOSSARY OF TELEPHONE ABBREVIATIONS**

By John A. Bracken

A 24-page (4"x8¾") reprint of two installments published in TELEPHONY, this glossary lists 1,075 abbreviations used in the various phases of telephone work. Examinations were made of abbreviations used by larger companies to save time and space in formulating reports and records, and the glossary was compiled for the benefit of companies considering the adoption or expansion of a system of abbreviations. Prices are as follows: 1-100 copies, each 50c; 101-1000 copies, each 45c; 1001-3000 copies, each 40c; 3001-5000 copies, each 35c; 5001-10,000 copies, each 30c; over 10,000 copies, each 25c.

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XUM

IN THE NATION'S CAPITAL

Continued from page 11

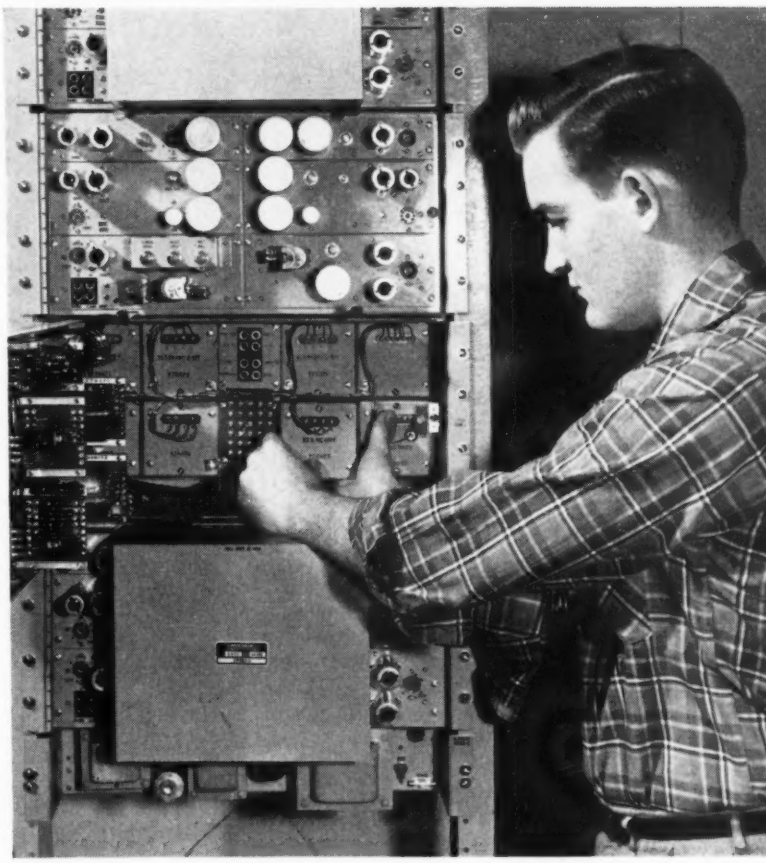
by Judge Bazelon, shakes to its very foundation the traditional policy of the telephone industry (both Bell and Independent) to bar any so-called "foreign attachment"—meaning any telephone appliance not installed, supplied, or maintained by the telephone company as part of the subscriber's service. Indeed, Judge Bazelon's opinion raises the very important question as to whether the foreign attachment rule might make the telephone industry suspect on grounds of *unlawful monopoly*, if it were used to suppress the sale and distribution of products by non-telephone companies.

Of course, each so-called telephone appliance must be tested on its own merits in applying the "foreign attachment" standard. A mere telephone table or other specialized furnishings or decorations could hardly fall under the heading of "foreign attachments." But house-powered dial lighters and various other gadgets might seriously interfere with service, when not controlled by telephone company rules.

It is hard to believe that the U. S. Supreme Court, to which the Hush-A-Phone Case will doubtless be appealed, will go along with the more extreme implications of the Bazelon opinion. This writer would surmise that, if the U. S. Supreme Court reviews the case at all, it will modify or reverse the lower court, even with respect to Hush-A-Phone.

Also, in this connection, watch for an important decision from the California Public Utilities Commission which is even now considering a request for standardizing rates for mobile telephone service. The request is being made by the Pacific Telephone & Telegraph Co. for permission to establish a standard rate schedule for the automobile-type telephone service used by taxicab and truck fleet operators and others having special need of such mobile service. What makes the California proceeding of special interest to telephone companies is the objection raised by an attorney for the Petroleum Industries Electrical Association.

It appears that Pacific Telephone & Telegraph Co., leases equipment to trucking, oil, taxicab, and other companies by individual contracts. It now wants to establish this service under a formal rate schedule. But the Petroleum Industries Electrical Association contends that this is not a public utility service and should not be so regulated. It was further charged that the telephone company's move would evade anti-trust restrictions on the telephone



He's actually replacing a filter

With some carrier systems, you'd have to do a major teardown just to get at the filters.

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company's activity in the radio-telephone field. The commission's decision is being watched closely as a precedent on the basic issue of whether this service is (or is not) to be regulated as part of a telephone company's obligation.

(10) *Anti-trust Proceedings.* The so-called "consent decree" which ended the Justice Department's anti-trust suit against the American Telephone & Telegraph Co. with respect to its subsidiary, Western Electric Co. is now an accomplished fact. But critical repercussions were heard in the House Judiciary Committee at the last session of Congress. Nothing can be done to open up this particular decree under which Western Electric continues as a subsidiary of the Bell System, provided it confines its operations to telephone business for that system. But, we can expect more criticism from the same source, mainly Representatives Roosevelt (D., Cal.) and Celler (D., N. Y.), in the next Congress.

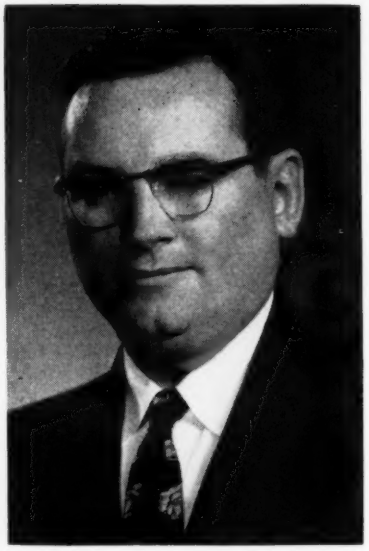
The reason why is because anti-trust agitation is going to be one of the main needling points of the Democratic Congress for the Eisenhower administration. Just a few weeks ago the Justice Department filed an anti-trust suit against the National Broadcasting Co. for buying some big city TV stations from its subsidiary, Westinghouse Broadcasting Co. These actions had already been approved by the FCC, which would seem to put two government agencies in conflict.

When the grandstand referees in Congress start sounding off about these and other evils of monopoly, we can expect that the Bell System's "consent decree" will get another dusting off, along with some criticism of the FCC itself for permitting the so-called "network monopolies" in the TV field to develop. Under the Eisenhower administration, the Justice Department has filed more anti-trust suits than any preceding administration. But that won't stop the House Judiciary Committee from issuing a blistering report on the evils of monopoly.

E. J. Burns Named Auditor Of Jamestown (N.Y.) Co.

Edward J. Burns, formerly auditor for the Home Telephone Co., Ridgway, Pa., is the new general auditor of the Jamestown (N.Y.) Telephone Corp. He succeeds Harold C. White Sr., who retired recently after holding that office for 30 years (TELEPHONY, Dec. 8, p. 48).

Mr. Burns was for 13 years with the Commonwealth Telephone Co., Dallas, Pa., as assistant treasurer, assistant secretary and chief plant accountant,



E. J. BURNS

specializing in acquisitions of telephone properties, financing, mergers and consolidations and rate proceedings.

Later Mr. Burns joined the Home Telephone Co. at Ridgway, Pa., as auditor and in charge of the accounting department, serving for two years before joining the Jamestown company in August.

Previous employment also included three years with the United States Department of Interior, National Park Service as office foreman in connection with development of recreational areas in the state of Pennsylvania. He also spent four years with the United States Army, Corps of Engineers, as purchasing agent on maintenance and improvement of rivers and harbors and flood control work in the Pittsburgh area.

A native of Wilkes-Barre, Pa., Mr. Burns was graduated from Wilkes-Barre Business College in Business Administration and attended Carnegie Institute of Technology, completing a course in engineering drafting. He also attended Pennsylvania State College, completing studies in auditing, and corporation and manufacturing accounting. He is a member of the National Association of Cost Accountants.

Name T. L. Berg Commercial Manager of General of Iowa

Thorval L. Berg, general commercial manager of the General Telephone Co. of Ohio and of the Ohio Consolidated Telephone Co., has been appointed general commercial manager for General Telephone Co. of Iowa and affiliated companies in the five-state area of Nebraska, Kansas, Missouri, Iowa and Minnesota.

The appointment is effective Jan. 1, 1957. Mr. Berg will make his office at Grinnell, Iowa, general headquarters of the General Telephone Co. of Iowa.

Mr. Berg, who is also assistant secretary and assistant treasurer of General of Ohio, is a native of the Dakota-Nebraska area. He began his career in telephony in 1922 in the supply department of the Western Electric Co. at Omaha, Neb. In 1934 he joined the commercial sales department of the Northwestern Bell Telephone Co., and in 1937 became a sales representative of the Associated Telephone Co., Ltd., predecessor of the General Telephone Co. of California.

With this company he rose to the position of district commercial manager at Santa Barbara, Cal.

In May 1951, he was named general commercial manager of the General Telephone Co. of Ohio, later being elected assistant secretary and assistant treasurer of the company by the board of directors.

NBFU Issues Revised Fire Prevention Code

The National Board of Fire Underwriters (NBFU) on Dec. 20 announced publication of its newly-revised model Fire Prevention Code.

Safety engineers and fire protection authorities have declared it to be one of the most important codes a city can adopt. They point out that it provides the necessary safeguards a community must take to protect life and property from the hazards of flammable and explosive substances and the many occupancy hazards found in every modern community.

For instance, the code provides for safeguards against fire hazards and explosion from storage, handling and use of flammable liquids and gases, hazardous chemicals and explosives, plastics, dusts and fumigants. It provides as well for safeguards against conditions hazardous to life and property in the use or occupancy of buildings or premises, such as garages, bowling alleys, junk yards and places of assembly.

The nation's press, the NBFU declared, daily reports death and destruction caused by fires and explosions. "These occurrences," it said, "are usually the result of a combination of circumstances, a common contributing factor being the improper handling and use of flammable and explosive commodities, thus showing the need for effective municipal control."

The Board pointed out that muncipal fire departments are in a position to render further valuable service to their community in fire prevention activities, but to be effective in this activity they need the backing of a suitable fire prevention code. "Few cities are in a

position to prepare a code of this nature, so that a suitable model fire prevention code is the answer to their needs," the Board declared.

The National Board of Fire Underwriters, which is the nationwide service, engineering and educational organization of capital stock fire insurance companies, has pioneered in the development of model codes. In 1895 the board published the first nationally recommended electric code, known now as the National Electrical Code, in 1905 the first model building code, and in 1930 the first model fire prevention code.

Everett W. Fowler, director of the division of codes and standards, supervised the compilation of the code, which is a revision of the board's nationally-known "Fire Prevention Code" last published in 1953. Various editions of the code have been adopted in approximately 900 communities.

This latest edition, Mr. Fowler says, has been revised in many sections in order to bring it up to date and make it consistent with all the latest nationally recognized safety standards.

Several changes and additions have been made, including a new section on potentially explosive chemicals, to meet the needs and requirements of municipalities. "It is the only nationally recommended model fire prevention code published in this country," he said, "and is usually enforced by fire prevention bureaus such as exist today within the fire departments of most cities."

In addition, there is published in the new code book a suggested ordinance providing for the establishment of a bureau of fire prevention and for the adoption of the code by reference. "Adoption by reference," he explained, is a means which has been used by many cities throughout the country in adopting the code.

Mr. Fowler urged every city which does not have a comprehensive, up-to-date fire prevention code, to adopt this new one. He suggested those that have an earlier edition of the code to replace it with the new one. "The uniformity which would result from such widespread use of the new code would benefit everyone concerned," he said.

Copies of the new Fire Prevention Code may be obtained free by persons having an interest in the code as well as by committees considering local codes. Copies will be supplied on request to the National Board at 85 John Street, New York 38, N. Y. If you live in the Middle West, write to 222 West Adams Street, Chicago 6, Ill., and, if west of the Rockies, write to 465 California Street, San Francisco 4, Cal.

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Letter Indicates Site of First Telephone in South

A letter from Charlie Reid, now 85, of Woodbury, Ga. to a cousin, Mrs. Plummer Abbott of Seneca, which subsequently appeared in the local newspaper, would seem to establish that the first telephone line in the South was located in Seneca, Ga., and that this type of equipment was first exhibited at the Industrial Fair in New York in 1879.

Ray Horne, district manager at Toccoa for Georgia Continental Telephone Co., happened upon the news clipping containing Mr. Reid's letter and forwarded a copy to TELEPHONY. The following is quoted from the Seneca newspaper:

"I wonder how many people in Seneca know that the first telephone line ever established in the South was at Seneca? I was a 10-year-old boy in 1881, and went to Mississippi with papa to see Uncle John Reid's family that year.

"We had a stay of an hour or more in Seneca waiting for the R and D train. That company had just installed a telephone line between the R and D station and the Blue Ridge station which was down the road toward Pendleton about 400 yards.

"It was a funny contraption. A large, flaring horn was inserted in the wall with a skin stretched over the end of it. From this horn a wire went to the other station and was attached there to the same kind of horn.

"You tapped in the horn for attention at the other end and those in the station could hear both sides of the conversation, which was kinda cracked, but fairly distinct.

"This line, with the two receivers, was the same that was first exhibited at the Industrial Fair in New York in 1879, that being the first appearance of the telephone. Papa (the late Creight Reid of Walhalla), J. D. Smith and, I think, Jim Seaborn, were in New York at the time.

"In 1880 some lines had been stretched in New York state but none that there is any trace of, South of the Mason-Dixon line until this one at Seneca.

"We stopped over in Atlanta on this trip coming home. At that time there were no electric lights there, only gas lights along the street and no telephones. That, you see, was almost 70 years ago."

One of the features of the new International Business Machines Corp.'s "World of Numbers Exhibit" at the Museum of Science & Industry in Chicago is the cycloramic staging of Project SAGE, the nation's electronic air defense system. Here, by simply lifting a telephone, the visitor puts into operation a simulated air attack by enemy bombers. The three dimensional display and film shows how information is relayed with lightning-like speed from early warning radar stations and ground observer corps to Air Defense Command Centers. At these Centers, the SAGE computer, fastest in the world, calculates the speed, course, and altitude of the approaching enemy planes in a millionth of a second. Within minutes, jet interceptors, NIKE missiles, and coastal anti-aircraft batteries go into defensive action with exact knowledge of where the enemy is, where he is headed, and when he will reach the point of interception. Above, SP3 Richard E. Hare (left) and Sgt. Fred A. Rollins, 45th Antiaircraft Artillery Brigade, join other Museum of Science & Industry visitors for an explanation of Project SAGE, in the new "World of Numbers" exhibit.

Announce Formation of Lenkurt International Corp.

Lenkurt Electric is extending its sales engineering activities throughout the world by forming an international subsidiary and opening branch offices overseas. Lenkurt International Corp. has been chartered under the laws of the Republic of Panama and will have its main office in Panama City.

A. P. BOWSER

It will handles sales of Lenkurt carrier and microwave radio communication systems to its distributors as well as between Lenkurt factories in the U. S., Canada and Mexico.

Branch offices are being established immediately in Geneva, Switzerland and in San Carlo, Cal., headquarters of

W. C. FISHER

the parent firm. Another branch is planned for Caracas, Venezuela.

Officers of the parent company who will serve in the same capacity and also as directors of the new subsidiary are President Lennart G. Erickson and Vice President Kurt E. Appert, George

F. Koth, Philips B. Patton and Kenneth R. Rickey.

Alden P. Bowser will be Lenkurt International's vice president and manager of Eastern Hemisphere operations, while Weston C. Fisher will be vice president and manager of Western Hemisphere operations.

Mr. Bowser will go to Geneva where his group will offer sales assistance to customers and survey the market for multi-channel communications equipment in Europe, Africa and the Middle East.

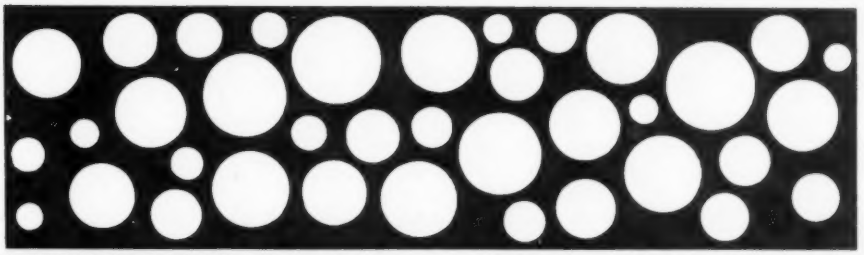
He joined Lenkurt in 1954 and has headed various sales activities, his most recent assignment being manager of government and industrial sales. Previously he was with the Civil Aeronautics Administration 12 years, four of them as deputy chief of the Electronics Branch. He holds the BSEE and MSEE degrees from Massachusetts Institute of Technology.

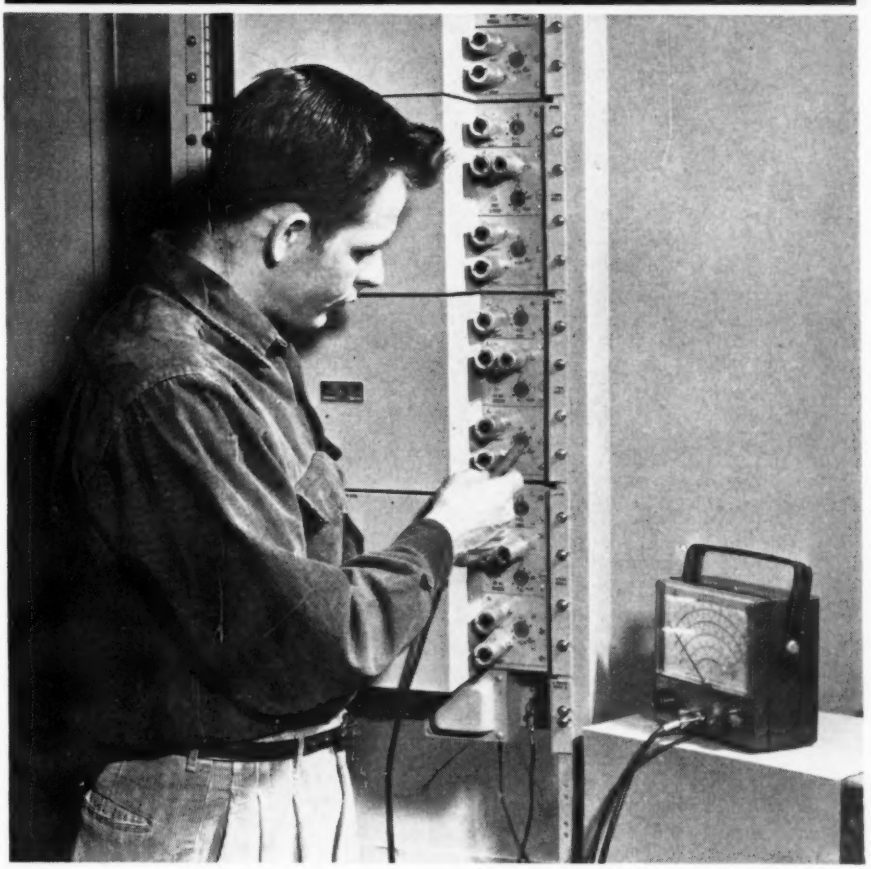
Mr. Fisher will be in charge of the San Carlos and Caracas branches and will direct activities in the Western Hemisphere. He also will continue as export manager of Lenkurt Electric Co.

He joined Lenkurt in 1952 and has been in managerial sales posts the past three years. He formerly was sales manager for RCA in Canada and was an official of a communications firm in Ontario. He has two degrees in science from the University of Saskatchewan and did graduate study at Purdue University.

Lenkurt International is the second foreign subsidiary established by the San Carlos company in recent months. Manufacturing operations are now getting underway at newly formed Lenkurt de Mexico. A Canadian subsidiary was founded in 1949, five years after the parent company.

"Our Home Has Only One Phone"





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Best way to get rid of the heat is to give it plenty of freedom to move. That's why we leave the tubes in our carrier units uncovered.

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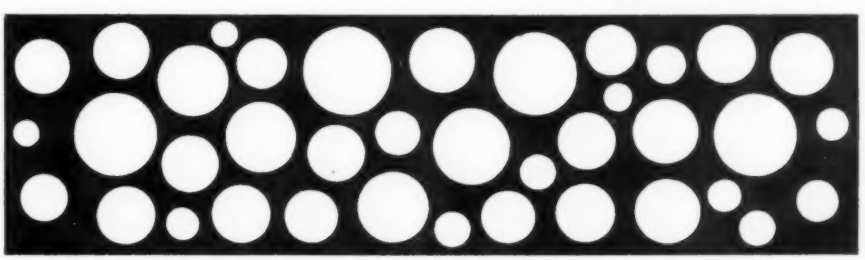


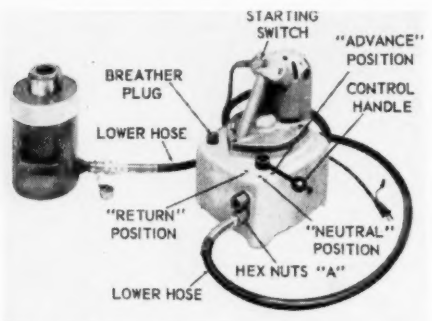
News on New Products

CABLE—Under a program which became effective Oct. 1, The Ansonia Wire & Cable Co. announced that all Ankoseal 775-P cables normally rated as exchange cables are now being delivered "with electrical characteristics proved adaptable for use on the finest carrier systems in service."

Practical effect, according to Ansonia Wire & Cable Co., is to enable users of Ansonia exchange cable to "go to carrier" any time with assured freedom from noisy cable, excessive cross talk, and excessive circuit unbalance. Request NP592.

•

GASOLINE-OPERATED HYDRAULIC PUMPS — According to a recent announcement, Templeton, Kenly & Co., now has available a lightweight, gasoline-operated hydraulic pump for use with all single or two-way Simplex "Re-Mo-Trol" hydraulic rams. The power

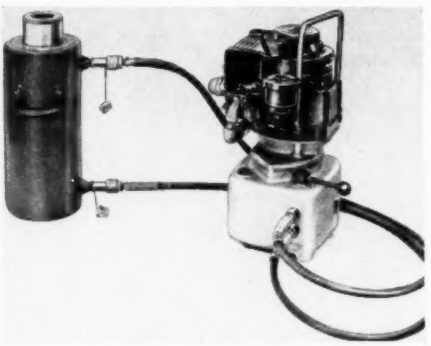


pump with a displacement of 30 cubic inches of oil per minute will raise a ram five times faster than a hand pump with a displacement of 6 cubic inches of oil per minute, the company states. For example, a 60-ton capacity ram is raised 1 inch in half a minute with a gasoline pump compared to 1 inch in two minutes with a hand pump. Thus, to the labor saving efficiency of hydraulic jacks and pullers is added time saving operating speed, it is pointed out.

This new pump unit, known as the No. 798 GM, has a 1½ hp gasoline engine which provides continuous operating pressure of 5,000 psi and intermittent pressure up to 10,000 psi. When used with Simplex "Re-Mo-Trol" rams, the No. 798 GM provides combination units with capacities from 10 to 600 tons for lifting and moving heavy loads. The set-up exerts lifting, pushing or pulling force in any direction, while the operator remains a safe distance away. It can be used to lift and lower machinery, align beams, straighten buckets and forms, prestress concrete—has any number of applications in industrial and construction fields. Request NP593.

•

ELECTRIC HYDRAULIC PUMP—An increase in the operating speed of hydraulic jacks and pullers is now achieved with the use of a new electric hydraulic power pump, also just announced by Templeton, Kenly & Co. The new unit, known as No. 798 CO, will raise a 60-ton capacity Simplex "Re-Mo-Trol" ram five times faster than a hand pump—lifting the ram 1 inch in half a minute compared to two minutes with a hand pump.



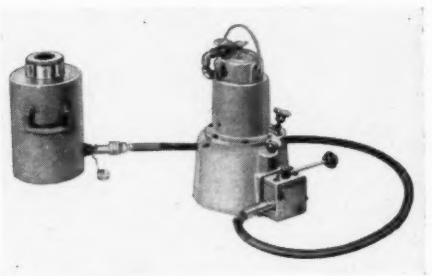
The electric pump has a displacement of 30 cubic inches of oil per minute at 10,000 PSI, compared to a hand pump's displacement of 6 cubic inches per minute at approximately 30 strokes, the company states.

The new No. 798 CO electric pump, when used with Simplex "Re-Mo-Trol" single or two-way rams, provides combination units with capacities from 10 to 100 tons for lifting, pushing, or pulling heavy loads. The setup exerts force in any direction, while the operator remains a safe distance away.

The pump has a built-in ½ H.P. 115 V 60 cycle AC/DC universal motor and a two-speed automatic changeover. It has a built-in safety by-pass valve and a selector valve which reverses plunger on two-way rams. The pump can be turned off or on without loss of travel of ram plunger. It weighs 62 pounds. The oil reservoir is 6 quarts full; 4½ quarts working capacity. Request NP 594.

•

AIR-POWERED HYDRAULIC PUMP—Templeton Kenly also has introduced a new air powered hydraulic pump. The air operated pump, known as No. P7A is usable with all single and two-way Simplex "Re-Mo-Trol" rams, and lifts



seven times faster than a hand pump. It has a displacement of 42 cubic inches of oil per minute and will raise a 60-ton capacity ram 1 inch in 20 seconds—compared to a 1 inch raise in two minutes with a hand pump having a displacement of 6 cubic inches per minute, the company states.

Used with "Re-Mo-Trol" rams, the No. P7A air powered pump provides combination units with capacities from 10 to 600 tons. The "Re-Mo-Trol" units lift, push, or pull—up, down, sideways or at any angle and the "center-hole" feature of Simplex rams greatly simplifies rigging in many pulling applications. The powerful pump provides 11,000 PSI hydraulic pressure at 90 pounds PSI air pressure to move heavy

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loads smoothly, while the operator remains a safe distance away.

The new Simplex No. P7A pump weighs 44 pounds. Oil reservoir has a four-quart capacity. A selector valve reverses the flow of oil to raise or lower ram plunger on two-way rams. A variable pressure control valve regulates hydraulic operation. Request NP595.

•

TRUCKS—The line of International "all-wheel-drive" trucks has been expanded through addition of four six-wheel-drive models and two four-wheel-drive models, it was announced by R. M. Buzard, manager of sales, motor truck division, International Harvester Co. All are heavy-duty units.

The new six-wheel-drive models are the SF-170 (6x6), with gross vehicle weight rating of 22,000 pounds; SF-172 (6x6), GVW 26,000 pounds; SF-180 (6x6), GVW 30,000 pounds; and SF-182 (6x6), GVW 33,000 pounds.

New four-wheel-drive models are the S-170 (4x4), GVW 19,000 pounds; and S-180 (4x4), GVW 20,000 pounds.

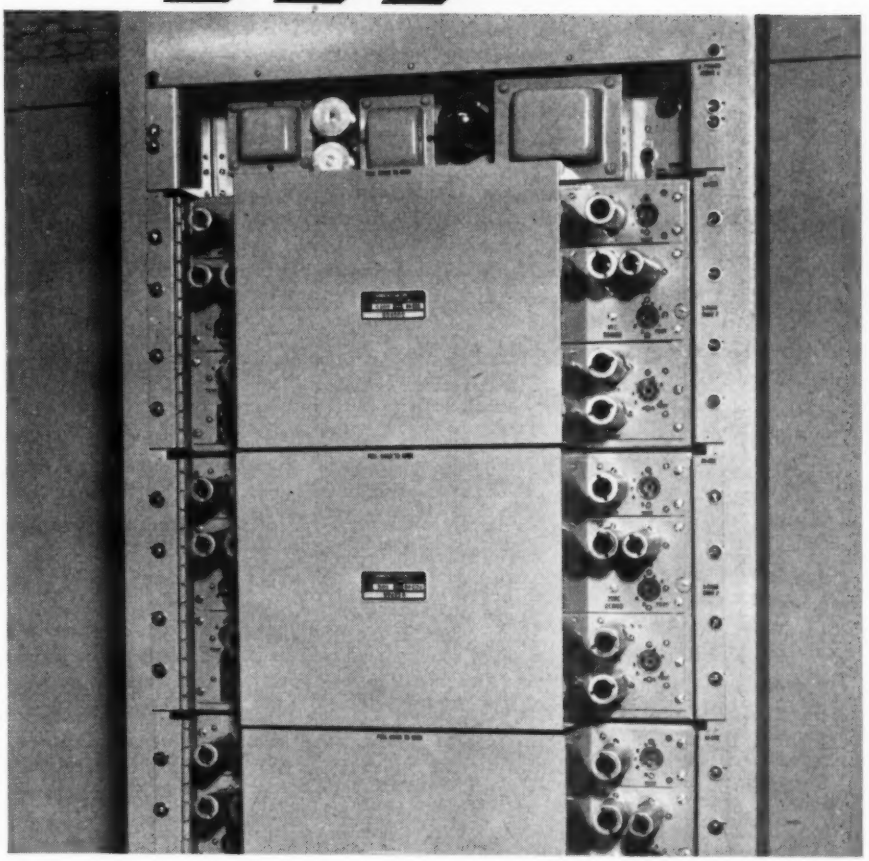
The six-by-six models are available in four wheelbases: 142, 154, 172, and 190 inches. The four-by-fours are offered in four wheelbases: 130, 142, 154, and 172 inches.

Standard rear-end loading height and minimum increase in front-end height with excellent ground clearance are claimed as design features of the new International "all-wheel-drive" models. New design front drive axle with center section, and outrigger type front spring mountings facilitate lowering of the chassis front end and provides better stability. Frame reinforcements have been extended forward beyond the front spring mounting brackets for additional front end strength and rigidity.

Transfer case is a new "cloverleaf" type and includes a new 10-inch DLM parking brake. There are low propellor shaft angles and larger steering gear with relay assembly.

Full torque power take-off mounted on the transfer case is available for use with each of the new models.

Front axle capacity is 7,000 pounds. Single reduction axle ratios are, for the SF-170 (6x6) series, 6.7 to 1.0; SF-180



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(6x6) series, 6.065 or 7.065 to 1.0. For the S-170 (4x4) series ratios are 6.166 or 6.666 to 1.0 and, for the S-180 (4x4) series, 6.5 to 1.

Standard and optional gasoline and LPG-fueled engines are offered in the new models.

The International line of "all-wheel-drive" trucks now has 10 models and ranges from 7,000 to 33,000 pounds GVW. Other models are the light-duty S-120 (4x4), with 7,000 pounds GVW; the medium-duty S-140 (4x4), GVW 11,000 pounds; and the S-160 (4x4), GVW 15,000 pounds; and the heavy-duty S-164 (4x4), GVW 18,000 pounds. Request NP596.

•

TRUCK DIFFERENTIAL—A new differential which increases vehicle traction and flotation by preventing wheel spinning in slippery or soft terrain has been made available for the International model S-100 light-duty truck, it also has been announced by International Harvester Co.

Known as the "Powr-Lok" differential, this device prevents the truck from becoming immobile, when one driving wheel loses traction, by transmitting the major driving force to the wheel with the better traction.

This efficient differential prevents wheel spinning and sudden shock loads due to wheel bounce over rough roads or non-uniform surface conditions such as ice and snow spots, wet and dry pavements, sand and gravel, and conditions where one driving wheel may slip off the pavement. Powr-Lok provides vehicle safety and stability during high speed driving, the company states.

Suitable for use with either standard or automatic transmissions, this differential is especially valuable to light truck operators who work in ice or snow, in mud, loose sand, hilly terrain, plowed fields, or other types of cross country operation. Request NP597.

•

HANDS-FREE TELEPHONE LOUDSPEAKER—Hands-free telephoning is now possible with a new transistorized amplifier known as the Tel-O-Master, manufactured by Fisher Research Laboratories, Inc. The telephone handset is placed on this new unit with the result that the incoming conversation is amplified to a normal conversational tone. Return conversation is automatically directed into the telephone handset by the Tel-O-Master, the company explains.

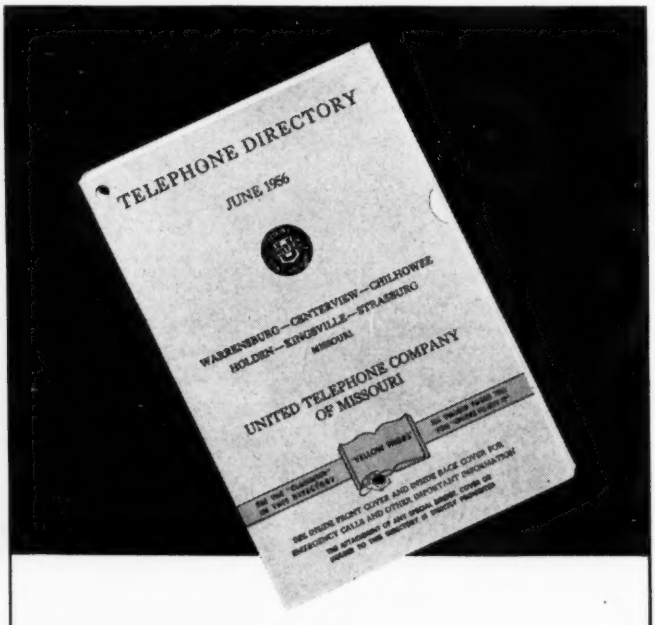
Completely portable, the Tel-O-Master requires no connections to the telephone or electrical system. Amplification is provided by four hermetically sealed transistors. Power is provided by miniature mercury cell batteries. Placing the telephone handset on the Tel-O-Master automatically puts the unit in operation. Request NP598.

•

FOUR-WHEEL DRIVE TRUCK — A new four-wheel drive truck—the "Forward Control 'Jeep' FC-150"—is being introduced by Willys Motors, Inc.

The FC-150 embodies new design and engineering features which have been combined to provide a vehicle with maximum cargo space in relation to wheelbase.

Key to the over-all engineering advances in the new vehicle is the up-front location of the cab, situated well forward of the engine. This "forward control" design allows maximum usage



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of the vehicle's compact 81-inch wheelbase for payloads, and places the driver in the optimum position for all-direction visibility and vehicle control, the company states.

The FC-150 supplements the regular 1957 line of Jeeps, Jeep trucks, utility wagons and other models in the company's "family" of four-wheel drive vehicles.

Powered by the Willy's F-head "Hurricane" engine, the same power plant in both military and civilian models of the Jeep, the FC-150 is engineered with four-wheel drive for off-the-road service over all types of terrain.

For normal highway operation, the vehicle shifts into conventional two-wheel drive.

The FC-150 offers nine forward and three reverse power combinations. The change from conventional to four-wheel drive is made by shifting the single floor-mounted transfer case control lever to meet varying driving requirements without stopping the vehicle.

An optional four-speed transmission, available at extra cost, provides 12 forward power combinations.

Forward control design provides a payload bed more than 6 feet in length despite the vehicle's 81-inch wheelbase. With tailgate extended, cargo length is 92 inches.

Fuel tank and spare tire are mounted in easily accessible but out-of-the-way positions at the sides of the cargo box where they are well protected from damage.

With a low center of gravity, the payload bed is only 24 inches from the ground, most convenient loading height of any four-wheel drive vehicle.

A large, roomy interior is a feature of the "safety-view" cab, which provides up-front visibility. The high, wide wrap-around windshield is almost 1,200 square inches in area, and the driver can see an object on the road as close as 6 feet from the front bumper.

A broad rear window of 628 square inches and optional rear quarter windows provide the all-direction visibility so essential for safety and operational efficiency, particularly in off-road service, the company states.

A large, roomy interior distinguishes the Forward Control cab. Suspended brake and clutch pedals, fully adjustable driver seat, and a console-type instrument panel designed for beauty as well as utility are among the features of the cab. An innovation is the placement of the brake fluid tank access cover on the instrument panel for ease of checking and filling.

Additional features in the deluxe cab model include acoustical trim panels on doors and headlining, foam rubber seats, and rear quarter windows in addition to standard equipment.

The FC-150 becomes a source of stationary power when equipped with power take-off. Power is available at three take-off points—front, center and rear. The center take-off point delivers power to operate generators, welders and other bed-mounted equipment, while the front and rear points supply power for winches or belt and shaft-driven equipment, respectively.

Over-all length of the vehicle is 147½ inches, and over-all width is 58¾ inches. Turning radius is 18 feet. Request NP599.

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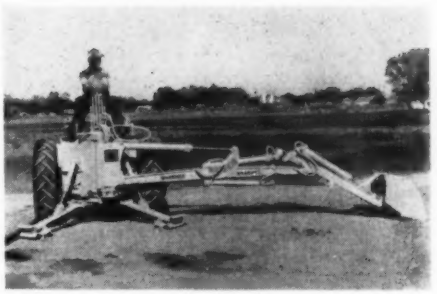
BACKHOE—A new hydraulic backhoe for light tractors has recently been



announced by Shawnee Mfg. Co., Inc. Named the "Warrior" the machine is designed for specific types of digging. It digs slightly more than 12 feet below ground surface and has a full swing of 170° through three 120° quadrants of operation.

Shifting from one quadrant to another can be performed from the operator's position. The new machine utilizes Shawnee's push-pull principle which produces digging power of over 4,800 pounds at the bucket teeth. One hydraulic cylinder above the main boom pushes on an extension of the bucket boom synchronously. With the two cylinders providing push-pull force there is a minimum of strain on the axis pin. Any or all of the hydraulic controls may be operated at the same time.

The new Shawnee "Warrior" is pro-

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tected by an hydraulic bypass setting of 1,400 pounds per square inch. It is designed so that the whole unit can be installed or removed from the tractor in a matter of minutes. Individually controlled hydraulic stabilizers align the unit for plumb digging on slopes, with the wheel on a curb, etc. The new unit is adaptable for mounting on all popular makes and models of light industrial tractors. The "Warrior" will increase the number of Shawnee backhoe models to four with digging depths reaching from 7½ feet to 15 feet. Request NP600.

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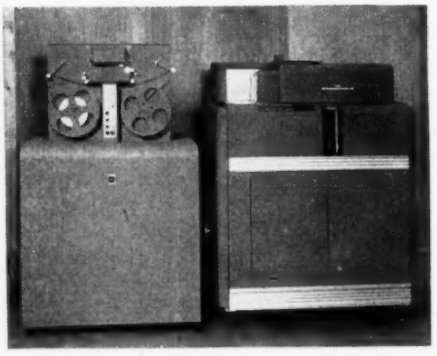
TOLL TICKET READER—Telecomputing Corp. has introduced a new high speed tape to card application for automatic toll ticketing. The system is comprised of a high speed perforated tape



reader and a standard IBM card Digitizer. It will convert billing information to individual cards at the rate of 100 calls per minute. Increased conversion speed is gained by the reader being able to read an entire taped block of random digits and channels as compared with the single channel capability of other widely used equipments.

This equipment has recently been installed in the General Telephone Co. of California. Request NP601.

•

ELECTRIC TYPEWRITER—The Electric Typewriter Division of International Business Machines Corp. has announced the development of a new model electric typewriter designed for use as an input and output device for the data processing field.

The new typewriter automatically types at a rate of 120 words a minute. In can be used in conjunction with computers as well as with measuring and recording instruments to provide a visual record.

The input-output typewriter is operated by a series of electro-magnets and solenoids mounted beneath the keyboard. The magnets and solenoids act as receivers of signals transmitted from the controlling device, or computer, and automatically actuate keyboard functions of the typewriter, including carriage return, spacing, tabulation, ribbon color control and others. When used as an input device, electrical impulses are transmitted from the typewriter by merely depressing a key.

It is approximately the same size as a standard IBM electric typewriter and may be used for general office procedure. Request NP602.

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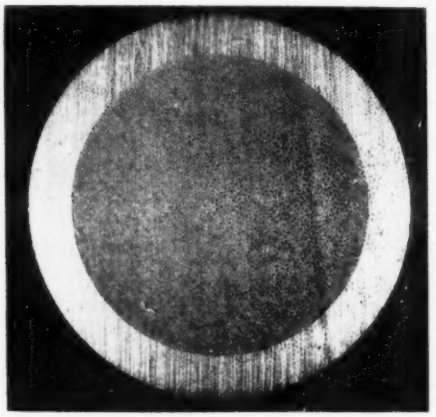
COPPER-PLATED COMMUNICATIONS WIRE—Development of a new type communications wire of high-strength steel with heavy copper coating has been announced by National-Standard Co., a leading producer of specialty wire for industry. It is in limited commercial production at the company's



Niles, Mich., plant, where National-Standard's method of copper plating steel wire was pioneered three years ago.

Although the biggest volume application of the new product is expected to be in telephone, telegraph and railroad signal lines, the wire will meet multiple requirements of high tensile strength (up to 250,000 psi), electrical conductivity, bright finish and resistance to fatigue and corrosion. The copper coating is joined to the steel core in a permanent bond that permits twisting, stranding, weaving, braiding, bending or flattening the wire without rupturing the bond, the company states.

The new Copperply wire is available in two grades, with 30 and 40 per cent conductivity and in both high and extra high strength classes. Earlier Copperply wire, introduced in 1953, contains 5 and 10 per cent of copper content by weight. Its primary applications have been television antenna lead-in wire, tinsel, jewelry chain and building tie wire.

Heavier coatings were developed specifically to meet needs of the communications industry, said Alfred H. Johnson, president. The new wire, in addition to costing less than solid copper wire, has the reinforcing strength of

a steel core. This permits significant economies through elimination of up to one-third of the poles required for supporting solid copper lines. It also provides a higher safety factor, less sag and greater resistance to storm and ice damage, Mr. Johnson stated.

The wire is produced in all standard sizes from #1 to #12 AWG (American Wire Gauge number). The core is available in a wider range of strengths and hardnesses. Initial production is concentrated on existing commercial specifications. The accompanying illustration is a microphotograph of 0.104-inch diameter Copperply wire, magnified 20 times.

Three years of research was required to produce the new heavy-coated wire with the same dimensional accuracy and bonding strength of the lighter Copperply wires, according to Mr. Johnson. Uniformity of coating thickness is held within one per cent of wire diameter, he said. The production process is based upon improvements in the Kenmore plating process, acquired by National-Standard in 1955.

Helical lengths of steel wire are electroplated in a special bath that produces an unbreakable bond of copper and steel, and are then finished to size in precision drawing operations.

A chart may be obtained from the National-Standard Co. which gives the nominal properties of 30 and 40 per cent Copperply—such as breaking load in pounds; weight, and resistance, for corresponding AWG diameter sizes and diameters in inches. Request NP603.

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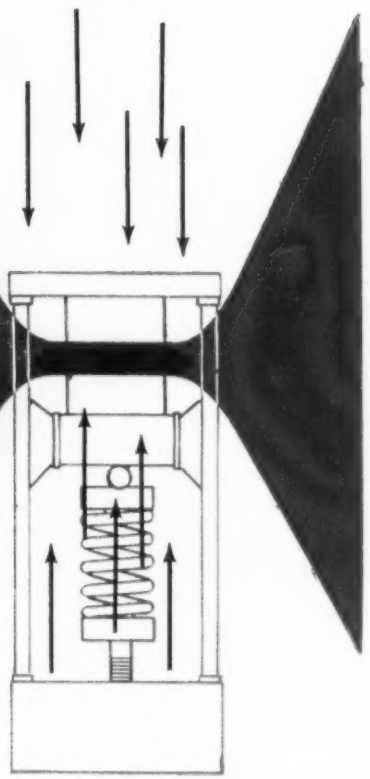

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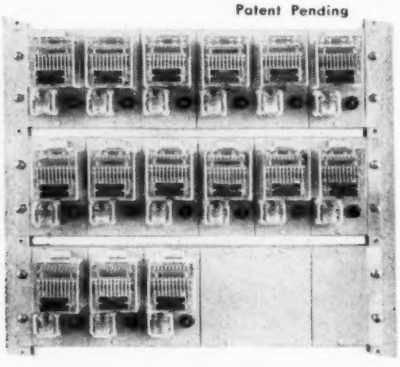

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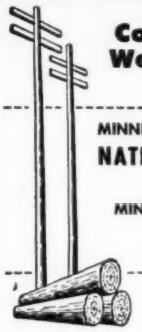

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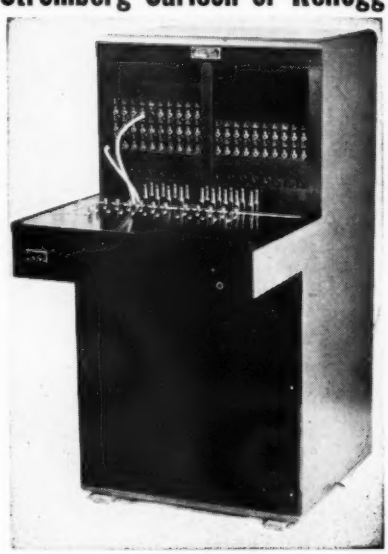

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ACCOUNTING AND AUDITING SERVICE—Services of experienced accountant available to all Class A, B and C telephone companies anywhere. Write Frank M. Clark, 3969 Ruckle St., Indianapolis 5, Ind.

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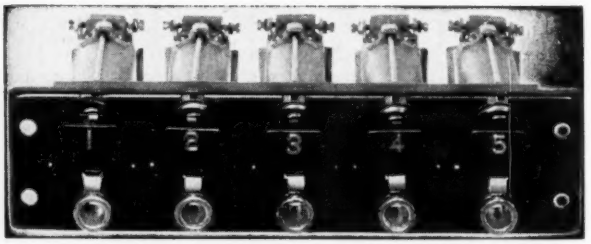

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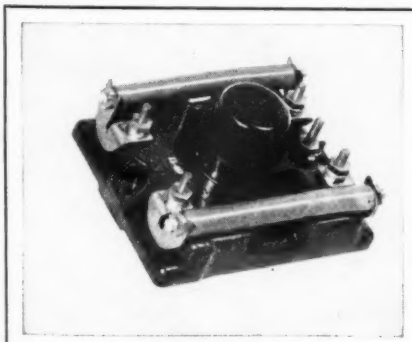

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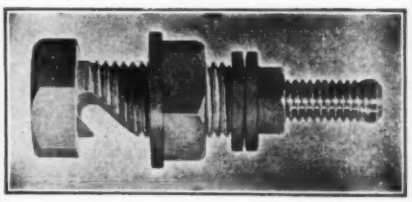

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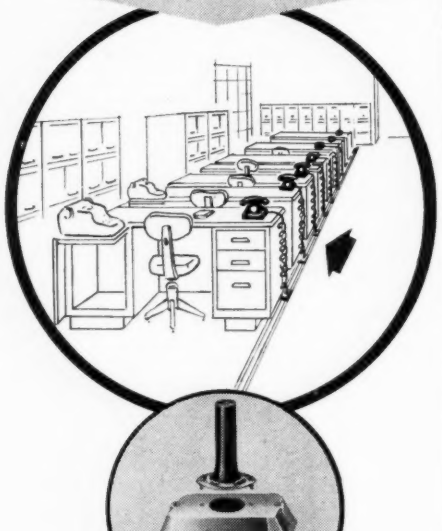

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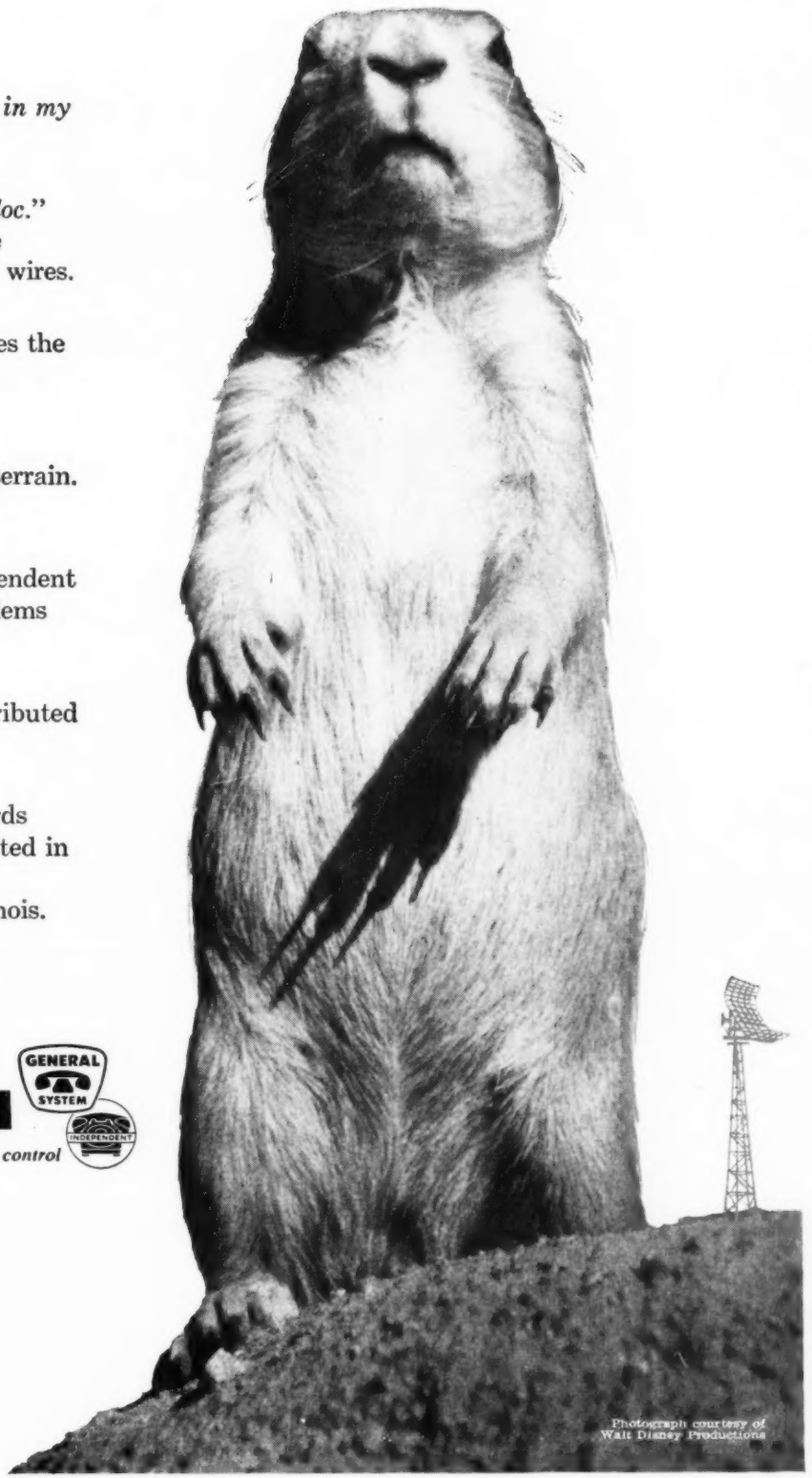

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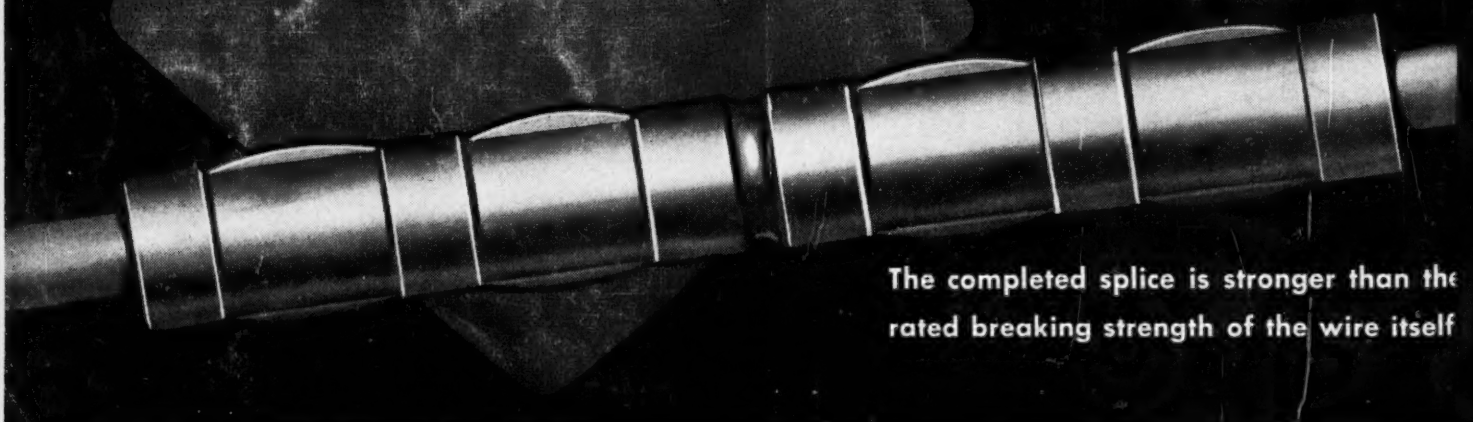

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